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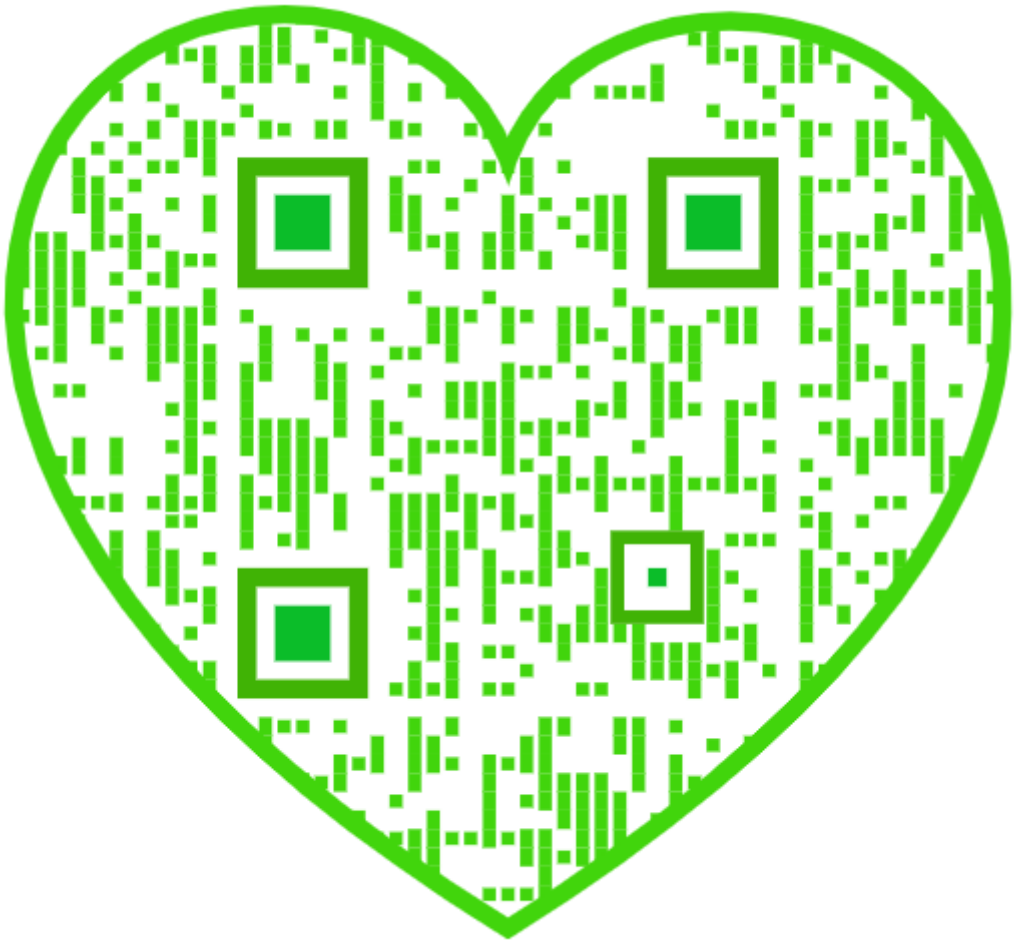

EVERY MAN

HIS OWN

HOUSE PAINTER & PAPER HANGER.

CONTAINING PLAIN PRACTICAL DIRECTIONS

FOR

HOUSE PAINTING AND PAPER HANGING.

ALSO, A GREAT MANY VALUABLE RECIPES FOR

MAKING CHEAP PAINTS, AND SUBSTITUTES FOR OILS AND WHITE LEAD

&c., &c., &c.

ST. LOUIS:
J. J. DALY, STATIONER AND PRINTER, S. E. COR. FIFTH AND PINE STS.
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Entered according to Act of Congress, in the year 1866,

BY THOMAS SMITH,

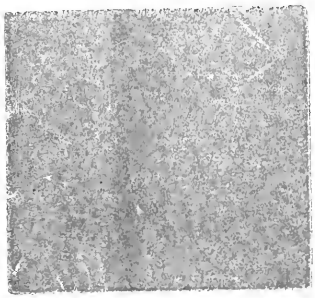
In the Clerk's Office of the United States District Court for the Eastern District of Missouri.

TO THE PUBLIC.

When we take into consideration the length of time devoted, and the amount of money expended by the author in trying experiments and bringing to their present state of perfection the various recipes contained in this Book, the price charged for the work (one dollar) appears to be very small; but the desire of bringing it within the reach of every one, and obtaining for the work an extensive circulation, thereby benefiting both himself and the community at large, has induced the author to offer it at the above price.

A COLORED CHART,

SHOWING HOW TO MIX SOME OF THE BEST SHADES FOR HOUSE PAINTING.

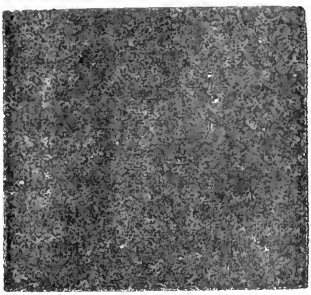


DRAB.
Mix White Lead and Raw Umber.

BUFF.
Mix White Lead, Yellow Ochre and Raw Umber.

STRAW COLOR.
White Lead and Chrome Yellow.

LEAD COLOR.
White Lead and Lamp Black.



SALMON COLOR.
White Lead and Venetian Red.

BROWN.
Venetian Red and Lampblack

EVERY MAN

HIS OWN

HOUSE PAINTER & PAPER HANGER.

Thousands of persons in the country, and also in our towns, have long felt the want of a work such as is now presented to the public by the author, who has had upwards of twenty years practical experience in the painting business. Such plain instructions as are here given, will enable any one to mix paints as well as an experienced painter, and the use of a brush can be acquired by a little practice, so that a person can turn off a pretty good job who has never painted before.

The object of this work is to enable the Farmer to paint his wagons and his plows, his mowers, his cultivators, his house, or anything he may wish to paint, and also to enable the Mechanic and the Merchant to paint their own houses, or chairs, or furniture of any kind, at their leisure hours, and the price of the book will be saved on the first wagon or piece of furniture painted by them; and I contend that this book, circulated amongst our agricultural population, and in villages and towns, amongst the mechanics and merchants, &c., will be the means of saving thousands of dollars to the country by the increased protection from the weather, that their houses and agricultural implements will receive by a little paint applied at the right time. The reason why a great many farmers and persons living away from towns do not pay any attention to the painting of their wagons, houses, &c., is, that it is frequently almost impossible for

them to get any person sufficiently acquainted with painting to do it. It is not because they do not know the importance of keeping all wood work exposed to the weather well painted, for they know that by experience, and they would gladly spend a little time and have all painted up, if they only knew how to do it themselves.

Of course the author of this book does not pretend to say that a person following these directions, and who has never had any experience in the business, can do fine work or turn off a first-class job. But he does say that any one can do a good plain job and improve by practice; and, also, that any one having this book to guide them, can do work that they would have to pay a regular painter a good price for, or else leave undone.

There are a great many receipts in this book that are unknown to many of our practical painters, and which they will find very much to their advantage to possess.

PLAIN DIRECTIONS FOR HOUSE PAINTING.

The first thing that you will have to ascertain in commencing a job of house painting, will be *the quantity of paint required to do the job*, and this you can come pretty near finding out by a little calculation, as to the amount of surface required to be covered by the paint. You can ascertain the dimensions of the house and then find the number of square yards of surface. For instance, your house may be 20 by 30 feet and 10 feet studding; then, by multiplying 10 by 20—200, which, multiplied by 2, gives the surface of the two ends of your house, which will be 400 feet, not including the gables. Then to find out the amount of surface on the sides, you can multiply 10 by 30, which gives 300, which, multiplied by 2, gives the two sides of your house—600 feet. Now, take the two products, 600 feet and 400 feet, and add them together and it makes 1,000 feet, which sum divided by 9, as there are 9 square feet, is one square yard. It shows that

there are about 111 square yards of surface, which will be quite near enough for your purpose. Now, the next thing to be taken into consideration is, what kind of siding it is; if it is very much weather-beaten, having been a long time without paint, it will require much more paint than if it is new siding. The amount generally required for 100 square yards on new siding, (two coats,) would be about 50 pounds white lead, and about 2½ to 3 gallons of linseed oil. In purchasing white lead, it is always more economical to buy the best pure lead, as it has more body and covers the work so much better than the low priced leads, as the latter are so much adulterated with foreign substances. In buying your oil, ascertain if it is boiled oil or raw. If you can get the boiled oil, you had better do so; it will cost a little more, but it will save you buying driers to go into the raw oil. If you cannot get the boiled oil, then you will have to purchase some driers, the nature, and use, and proportions to be used, I will now proceed to describe in the next article.

TO MAKE PAINTS DRY.

It must be understood that paint will dry much faster in warm weather than in cold, therefore, it requires more dryers in cold than in warm weather, and the proportions must be varied accordingly.

There are a great many different articles used as driers, such as patent driers, which are put up in cans ready ground; also litharge, which is an oxide of lead, and also Japan driers. I should recommend the last article, if it can be procured, as it is a good drier and very convenient to use; but if you cannot get it conveniently, then you can use either of the other articles, viz: patent driers or litharge.

The proportions of driers to be used will be, in cold weather, about a quart of Japan driers to a gallon of oil, and it may be poured into the oil and mixed with it before mixing your paint. If you use litharge it will take about a pound or a pound and a-half to a gallon of oil, and if you use patent driers it will take about the same as litharge. If

you should wish to boil your oil, I will give you directions how to do so in another part of this work.

Painters use turpentine or benzine in mixing their paints, but this is not necessary for outside work, only that it comes so much cheaper than oil (that is, benzine does) and it makes paint work easier, but is an injury rather than a benefit to outside work, that is, to use much of it; a small quantity, say about a pint to a gallon of oil, would do no harm.

KIND OF BRUSHES TO BE USED.

Two brushes will be sufficient, by being careful with them, to paint a small house, say 20 by 30. One brush should be about a four 0, as they are numbered from one cypher up to about six, which is sometimes called a pound brush, but a medium size, as I said before, a four 0, will be found the most convenient for a person who is not used to handling a brush, as it will not tire the wrist in painting as much as a larger brush would. As I said two brushes would be required, the other will have to be what is called a sash tool, a small brush used in painting sash, and also in working into corners and places where the larger brush cannot be used. I have said that only these two brushes would be required, and this is true, where only one color, such as white, is used; but if there are several different colors to be used, there will have to be a separate brush for each color. You will also require a pound or two of putty to stop up the nail holes in the cornice and corner boards, doors, &c., and also a sheet or two of sand-paper. You will also require a paint bucket to mix your paint in — a common water bucket, such as are sold in all grocery stores will do — but you must get a strong one, and do not fill it more than a little over half full of paint, as the paint is very heavy. You can get a tin bucket holding about a gallon to paint out of, and take a piece of stout wire, bent in the form of the letter S, to hang your tin bucket on the ladder while you are painting. This will be found very convenient, as it would be very tiresome to hold the bucket in the hand while painting.

I have now given a description of all the articles required to do a job of white painting, but for convenience, I will recapitulate in an abbreviated form, so that it may be rendered more plain to a person unacquainted with the business. First of all, your white lead will be in kegs; you can buy 25 pound kegs, 50 pound kegs, or 100 pound kegs, but the 25 pound kegs are the most convenient to handle. Second: your oil, which if boiled, will appear of a dark color, and will require no driers, but if raw, get any of the driers before mentioned. Third: get your brushes, a large and a small one, as mentioned before, your putty, sand-paper and buckets, and you are then ready to proceed, which you will do in the following manner:

MIXING THE PAINT.

Open one of your kegs of white lead by loosening the hoops, and taking the head out, or with a hammer split the head and take it out without loosening the hoops. When this is done, take a wooden paddle and lift out about half of the white lead, if it is a 25 pound keg, and if it is a 50 pound keg, about a quarter of what is in the keg will be enough; this will be about twelve or thirteen pounds, and put it into your large bucket to mix it with the oil. You will then pour on this quantity of lead about five pints of linseed oil, and if the oil is boiled you have nothing more to do than stir it up well with a paddle, until it is thoroughly mixed. If the oil is not boiled you must not forget to put in your driers, which will be a pint, more or less, according as you may want it to dry quick or slow, remembering that paint dries slow in cold weather and fast in warm weather, and that the more you put in the quicker it will dry; but it is not a good plan to make it dry too quick. If you use litharge for driers, put in about half a pound, more or less, and if it is coarse powder, pulverize it with a hammer, or something that will crush the lumps, and throw it in and mix thoroughly with the paint. If your driers are the patent driers, put in about two or three tablespoonfuls, and mix all up together. These pro-

portions given will be found sufficient for most kinds of priming, as the first coat is called. When you come to mix the second coat of paint, you will have to use more white lead, so as to make the paint thicker; but you can soon learn the proportions to use by a little practice and by trying the paint on a board, until you get it to look pretty white; but be sure and not get your first coat or priming too thick, as it will look smeary and not have an even appearance. You will next have to bind your large brush, as it will be too flexible, or as we say, too limber, to use as it is. You must take several yards of strong twine, and commencing about half way of the brush, bind it round and round upwards towards the handle. You must then secure this binding (so that it will not slip down in working with it) by bringing the end of the twine up over the head of the brush and tying it there. This being done, you will then be ready to go to work. You must fill your small bucket a little over half full of the paint, and, ascending your ladder or scaffold, commence at the top of your work and work downwards, so that the drops may not fall on your finished work, and be sure and do not paint a little here and a little there, but carry it across the building, for if you leave it to dry in patches it will show where it is joined together, and will not look well. It will be necessary to give the work three coats of paint to make a good job, though two will do on some kind of work and look very well.

TO PAINT HOUSES THAT HAVE BEEN WEATHER-BEATEN,

OR EXPOSED TO THE WEATHER A LONG TIME WITHOUT BEING PAINTED.

It must be understood that the directions which have thus far been given apply only to new wood-work, or to such work as has not been exposed to the weather.

Now in order to do a good job of painting on old weather-beaten siding, it is necessary, first, to try with a coarse broom to brush off as much of the dust and dirt as possible, and then to mix a sizing composed of the following ingredients:

Take a pound of glue, and pouring water over it so as to cover it, let it stand all night and soak. The next morning pour more water over it, and heat it in a kettle, and it will soon dissolve by stirring it. Then mix this up in about two common pailfuls, or bucketfuls of water. There will then be about four or five gallons of size, into which you will stir about six or eight pounds of Spanish White, or, as it is called sometimes, Whiting. Never mind if the whiting is in lumps, it will soon dissolve by stirring it well in the sizing. When it is all dissolved you can then commence laying it on with a common white-wash brush, and as soon as it is dry you can commence with your oil paint over it, and you will find that it will save oil paint and make a better job. Of course you will find that it will take more oil paint than if the work was new, but still the sizing it first will be a saving in paint, and also you will find it much easier to spread the paint on the sized surface.

DIRECTIONS FOR MIXING THE DIFFERENT COLORS.

What I have hitherto said on the subject of painting, has only been to explain how a plain job of white painting can be done. I must now say something about the different colors used in painting, but as they are very numerous, and would take up a great deal of room in this book, to very little purpose, I shall confine myself to such paints as are in common use, and such as can be obtained at any common country store all over the United States.

In the first place it must be understood that white lead is the basis of most paints used in house painting; but I must state here, that there are some cheap paints that can be mixed without any white lead, and will answer a very good purpose for rough work. The recipes for mixing the kind of cheap paints here spoken of, will be given in another part of this book. But I shall here speak of the paints having white lead as their basis. In the first place I will begin by describing

THE METHOD OF MIXING COLORS

SO AS TO OBTAIN ANY TINT OR SHADE REQUIRED.

In the first place you have to mix your white paint in the

manner described in the article on plain white painting; then if you wish

To make a Lead color, take lamp-black, we will say about a tea-cup full of lampblack, to about a gallon of the white paint, and mash the lumps, or pass the lamp-black through a sifter, and mix it thoroughly in the white paint, and you will have a good lead color. If it is not dark enough put in more lamp-black, and if it is too dark put in more white lead, until the desired tint is obtained.

To make a Purple or Lilac color, take some Venetian red, and mix in the above lead color, until the required shade is obtained. If you wish

To make a Flesh Color, take the pulverized Venetian red as it is sold at the drug and paint stores, and it will not require any grinding if you get a good article, and mix about two pounds of it in about a gallon of the white lead paint. You can put in more or less of the Venetian red, according to the tint required.

To make Drabs of different shades, use the raw umber, well pulverized, and mixed in the white lead paint, about two pounds of umber to about one gallon of the white lead paint, more or less, as you may require a darker or a lighter shade.

Buff Colors of Different Shades, may be made by using Chrome Yellow. And here I would say that the chrome yellow, as it is usually sold at the paint stores, is in lumps, but these lumps are easily pulverized, and if you have not got a paint stone, or a paint mill to grind it in, it will do very well for you to mash up the lumps, as fine as you can, on a board, or anything convenient, and then pass it through a corn-meal sifter, or anything of a similar nature. Having done this, and got your chrome yellow in a fine powder, put in about one pound of it to about a gallon of the white paint, and this will make a beautiful straw color. But as you want to make a buff, you must put in about one-half pound, or a pound of raw umber, according to the shade you may require.

To make a Straw Color of any shade, use Chrome Yellow in the white lead, as above directed.

To make a cheap Yellow, use Yellow Ochre in the white paint, two or three pounds to the gallon of white paint; but be sure and get the best yellow ochre, as some of the yellow ochre sold at the paint stores is too coarse, and too much like sand to use on anything but the roughest kind of work. You can use more or less of the ochre, as you may require a lighter or darker tint.

To make an Orange color, you must take Chrome Yellow, pulverized as above directed, and put about a pound, or a pound and a half into about a gallon of the white lead paint, and then take about a pound of Venetian red, more or less, as you may require a deeper or lighter shade of orange. If you require a finer tint of orange, you can use red lead, or vermillion, instead of Venetian red to mix in your yellow as above directed.

TO MIX AND USE THE GREENS.

I will now proceed to describe the nature and properties of the Greens in common use; and as these colors are the most difficult of any other colors, for a person unacquainted with the business to manage, I shall be very particular in my directions as to mixing and laying them on. I would, first of all, advise any one having anything to do with these paints, (and in fact with any other paints of a poisonous nature,) to be very careful and keep their hands and clothes as clean from the paints as possible. These paints are neither injurious, nor will they do any harm to any one, when they get sufficiently dry on the work. But whilst they are in a moist state they can be absorbed into the system through the pores of the skin, and also by breathing the air impregnated with the fumes, and by working in them for any length of time they will prove injurious. Therefore it is necessary for the painter to keep himself as clean of paint as possible.

Chrome Green and Paris Green are the greens most commonly used, and are considered the most serviceable. The Chrome Green is much darker than the Paris Green, and is the cheapest of the two, and has more body than the Paris Green, but it is not as pretty a green. Some painters put

white lead into the Chrome Green, to lighten it, but it is a bad plan, as it causes the green to fade so soon. I do not like to use it mixed with white lead; I much prefer the following plan:

To Mix a good Green for Window Shutters, &c. Take about equal quantities of chrome green and Paris green, and put them in your paint bucket, and pour boiled oil on them until you get them thin enough to use conveniently. But be careful not to make it too thin, as it will run. It is best to use it as thick as you can; and another thing you will have to be particular about, and that is that you get in plenty of driers. If your oil should not be boiled, you will have to put in about a quart of Japan driers to a gallon of the green paint; or about two pounds of litharge (if you cannot get Japan driers) will answer the same purpose. Now, you must understand, that whatever work you may have to paint with the green, (mixed as above described,) it is much the best to prime the work with some of the lead colored paint described in the article under the head of "Lead Color." Prime your work with this color, not too dark, and then it will be ready, when dry, to receive two coats of the green; and if it does not look well, you might have to give it a third coat of green. And in connection with this, it is as well to give some

INSTRUCTIONS HOW TO KILL THE KNOTS IN WORK.

As the knots in pine wood are apt to show through your work, even after you have put on three coats, you cannot hide them, and if there are many of them, they give rather a bad appearance to the work. Painters have resorted to various methods of hiding these knots, which they call 'killing' them; but I know, from experience, that they are hard to kill, and they are apt, after a short time, to rise up in judgment against the painter, unless he is very particular in using something to cover the resinous matter contained in them. I believe the old method is about the best—and that is to melt a little glue in water, so as to make a thin size, and stir in some litharge, or red lead; say about two tablespoonfuls of litharge or red lead, to about a teacupful of the size, and taking

a small clean brush, you can go over the knots, keeping the mixture well stirred up from the bottom. This must all be done before you commence painting, and when perfectly dry, you can go on with your priming. There are other methods of killing the knots in pine wood, used by painters, such as going over them with a kind of varnish made of shellac dissolved in alcohol, and also by going over them with some Japan driers, which last plan will answer as good a purpose as any, if you can give it sufficient time to dry, which will take two or three hours.

TO MAKE A GOOD DARK GREEN FOR CARRIAGES.

Take Chrome Yellow, and having pulverized, or ground it very fine, mix it with a sufficient quantity of boiled linseed oil to make it easy to work. You then take, in the proportion of about two or three tablespoonfuls of lampblack to about one pound of the chrome yellow, and mix in with the yellow, and you will have a good dark green color, very suitable for carriages. If your oil is not boiled, you must not forget to put in some of the driers, as mentioned in other recipes in this book.

Other Dark Greens can be made by using chrome green, and mixing in with it lampblack or burnt umber, to the shade required.

MAGNESIA GREEN.

There is another kind of green color which is coming very much into favor with painters, and, I think, will eventually supercede the use of chrome green and Paris green; and I think there is no doubt but that it is much less liable to fade, and will be found to stand the weather much better, than either of the other greens here mentioned. You can mix white lead, or zinc white, with this Magnesia Green, and it will not injure its durability; and you can obtain a lighter green or a darker green, by putting in more or less of white lead or zinc white. You must mix it to a proper consistency for painting by using boiled oil, or else raw oil and driers.

BLUE PAINT OF ANY SHADE REQUIRED.

Prussian Blue is the color principally used by painters for the purpose of mixing with white lead, and obtaining any shade of blue required; but as it is, when bought in a dry state, in lumps, which are hard to pulverize or grind, unless a person has a paint mill, or a paint stone, I would advise persons not having any means of grinding it, to buy it ready ground, put up in cans of a pound or two pounds each, which can be done at any of the paint stores. Having obtained your Prussian Blue, already ground, you can take about a gallon of white paint, mixed as directed in the article under the head of "White Paint," and put in about half a pound, or a pound of your blue, (according to the shade required,) and you will have a beautiful blue. This is the common method of mixing the blues used by painters. There are other blues, such as Indigo, which is a vegetable color, and also an expensive blue called Ultramarine. But these two last mentioned colors are not in common use, only the ultramarine, which is used for very fine work, and also in carriage painting.

TO MIX RED PAINT.

There are various kinds of red paint in common use among painters, but red lead, Venetian red and American vermillion are the principal colors used to make red paint. The red lead, as it is commonly sold at the paint shops, if of a good quality, will do without grinding for most kinds of work, and is generally used without any mixture of other paints, where you want a good light red for wagons, &c., but if you should want a darker red, you can mix about half Venetian red and half red lead. You need not be particular about putting in driers into this paint, as the red lead is a drier of itself. If you should want a very light red, you can mix into the red lead some white lead to the shade required. In mixing this paint you have nothing to do but pour in your linseed oil until you get it to work easy — the first coat or priming may be rather thin — it will take about three coats to make a good job on a wagon or plow, &c. Venetian red is a darker

red than red lead, and will do very well for any kind of work where a dark red is required, but it must have boiled oil, or else driers must be used in it. American Vermillion is a very fine red, and is used only in very fine work; it makes

A BEAUTIFUL COLOR FOR CARRIAGES

By mixing in lampblack with the vermillion until you get a beautiful dark brown. There is another kind of vermillion called the Chinese Vermillion, but this is more expensive than what is called the American Vermillion. It is put up in small paper packages, with Chinese characters on it; but this article is used only in the very finest work, and by artists. There are also other expensive reds of a vegetable nature, such as carmine and the different colors called lakes.

But it is not necessary to enter into details as to the mixing of these expensive colors, as this book is designed for every-day practical men, although artists and men who think they understand the business of painting thoroughly, may receive great benefit and a great many useful hints, by studying it a little and following the directions given and the rules laid down in this book.

TO MAKE A WALNUT COLOR.

A color resembling black walnut can be made by taking Venetian red and mixing lampblack with it to the shade required. Any shade of brown may also be obtained in the same way; that is, by mixing Venetian red and lampblack together. The above is about *as cheap a brown as can be made*. Also, burnt umber mixed with white lead, makes a good brown. Spanish brown is a coarse paint, used only on very coarse work, and mixed with boiled oil, will make a *cheap paint for barns and out-houses*.

A STONE COLOR.

A Stone color can be made by mixing yellow ochre, white lead and raw umber, until the shade required is obtained.

TO MAKE A GREY COLOR.

Use white lead, putting in a little Prussian blue and a small quantity of red lead or vermillion.

TO MAKE A SALMON COLOR.

Take your white lead paint, mixed as directed under the head of "White Paint," and mix in a little Venetian red, until the shade required is obtained.

TO MAKE A PURPLE COLOR.

Stir into your white lead paint about a pound or a pound and a half of Venetian red or red lead, and then put in Prussian blue until the desired shade is obtained.

A GOOD YELLOW FOR FLOORS.

A good Yellow for floors may be made by mixing the best yellow ochre with a little chrome yellow and a little white lead to give body to it, not forgetting to put in plenty of driers to make it dry hard and quick.

A HARD DRYING PAINT FOR COUNTER TOPS, CHAIRS, &c.

Take burnt or raw umber, Venetian red, or any dark color, and mix pretty thick in boiled oil, and then pour in black Japan varnish until it is thin enough to use.

TO IMITATE BRONZE.

Take chrome yellow and mix in lampblack until you get a dark green color, and with this go over your work two or three times. Then procure some bronze powder from the paintshop, and before the last coat of paint is quite dry take a piece of velvet or a piece of an old buckskin glove, and dipping it in the bronze powder, go over the edges and the most prominent parts of your work, and it will have all the appearance of bronze.

TO MIX A PAINT FOR FROSTING GLASS,

OR TO IMITATE GROUND GLASS.

Take white lead and mix it very thin with turpentine or painters' naptha, adding a little boiled oil and a little driers to make it dry quick. Then, with a common paint brush go over the window lights in as even a manner as you possibly can, and when you have got several lights covered with the paint, take a painters' duster — that is, a brush shaped like a paint brush, only much longer — and dab over the glass with the ends of the bristles in quick succession, until it appears uniform; it will then look like ground glass. If you should want to remove the paint from the glass at any time, you can do so by using a strong solution of pearl-ash to wash it off.

TO MAKE A FREESTONE COLOR.

Mix Venetian red and yellow ochre with white lead and a little lampblack.

TO MAKE A GOOD BLACK PAINT.

Take boiled oil and lampblack and mix rather thick; then, as it is a very difficult paint to dry, you must put in Japan driers or coach varnish, or else litharge, in the proportion of half a pint of Japan driers or coach varnish to a quart of the paint, or about half a pound of litharge to a quart of the black paint. This amount of dries will make it dry quick enough. N. B. The coach varnish gives the black the best gloss.

TO MAKE A FAWN COLOR.

Take white lead, yellow ochre and American vermillion, or red lead, and mix to required shade.

A CHEAP COLOR FOR PLOWS, &c.

A very good cheap color can be made for plows and other agricultural implements, by taking boiled oil and good yellow ochre. This color will stand the weather very well and looks well. Mix the boiled oil and yellow ochre together, as

directed for other colors, and if you have not got boiled oil be sure to use driers in your paint. I have said a good deal in this book about boiled oil, and it is very likely that a great many persons into whose hands this book may fall, will not understand how to boil it, nor why it should be boiled. Now, I have frequently had persons come to me and say, "I have boiled the oil for my paint, but it does not dry," and when I come to inquire into the matter, I have found that they simply put the raw oil into a kettle and boiled it without putting anything into it. Now, I will give plain directions to persons who cannot conveniently buy the boiled oil, and who, nevertheless, wish to have it boiled, and according to my experience, I consider it better to use the boiled oil than to put driers into the raw oil, as I think it stands the weather much better.

TO BOIL LINSEED OIL.

You must first get a kettle that will hold near double the number of gallons that you wish to boil, as the kettle should not be much more than half full, for there might be danger of it boiling over. You must then see that your kettle is clean and perfectly dry. You then pour in your oil. You then take about half a pound of litharge for every gallon of oil and put it into your oil, stirring it with a wooden paddle; you can then put it on the fire or put fire under it, and stir it frequently. When it begins to boil you must keep it boiling and stir it frequently, until the scum or froth has nearly all disappeared and the oil has assumed a dark color, which will be in about one hour or one and a half hours from the time it begins to boil. You can then remove the kettle from the fire, and when your oil is perfectly cool you can pour it off from the sediment, and your oil will be ready to use, and you will find it to dry without putting any driers into it. If you want to make your oil of a very strong drying quality, you must increase the amount of the litharge that you boil it upon. But it saves trouble and comes about as cheap to buy the oil ready boiled, if you can get it conveniently. There are various other methods of boiling oil. By using

sugar of lead instead of litharge to boil it on, and also by using red lead instead of litharge, about the same proportion as given above, (where the litharge is used) will do for the sugar of lead and the red lead; that is, it will take about half a pound to the gallon of either of the articles last mentione[1].

N. B. It is perhaps better to use the sugar of lead to boil the oil on, where the oil is to be used for fine work, as it is not quite so dark a color as when boiled on litharge. I will now proceed to describe the method of painting inside work, as it differs from the outside work, as regards the mixing of the paints.

DIRECTIONS FOR PAINTING THE INSIDE OF A HOUSE, &c.

In the first place, if your wood work is pine, you must try to kill the knots in the work, by applying to them some of the knotting, the manner of making which you will find described in another part of this book, under the head of "Knotting." Then, when that is done and the knotting is perfectly dry, you can proceed to lay on your paint, and if you intend to paint white color, you can mix your priming in the following manner: Take about twelve or thirteen pounds of white lead out of your keg — that will be about half of a 25 pound keg, or about the fourth part of a 50 pound keg, and, putting the white lead into the bucket you are going to mix it in, pour on to it about four pints of boiled linseed oil and about one pint of turpentine, or naptha. I prefer using the turpentine, but as it is and has been very high in price, the naptha, which comes much cheaper, makes a good substitute. Having put in your oil and naptha as above directed, mix all up thoroughly with a paddle; and, as I have before said in the directions for outside painting, if you cannot get the boiled oil you must use some of the driers heretofore spoken of, as the priming requires to have a good drying quality. You can now proceed to laying on your priming, running it into all the cracks and corners and laying it all as smooth as possible. When the priming is perfectly dry, which it ought to be in about twenty-four hours, you can

then commence stopping up the nail holes and cracks with putty; then, with sand-paper, rub off your work so as to make a smooth surface on which to paint the second coat, which you can now proceed to laying on. But this second coat must have a larger proportion of naptha in it than the priming, and must be made much thicker. You must use about equal quantities of naptha and oil. The object in using so much naptha is, that when much oil is used in inside white painting, it will turn yellow in the course of a short time, and then it does not look well, but has an old and dingy appearance. When you have put on your second coat of paint, if you want to make a good job of it, you must mix a third coat, which you can do in a similar way as directed for the second coat, only it need not be quite so thick as the second coat, and ought to have a larger proportion of naptha. Be sure that each coat has had sufficient time to dry before putting on another, as you will spoil the appearance of your work if it is not perfectly dry; and, also, rub over your second coat with sand-paper, before putting on the third. I will here say something about

Zinc White for Inside Work. Zinc white can now be bought at the paint stores, put up in kegs like the white lead, and is about as cheap, but it has not as much body as the white lead. It is frequently used both for inside and outside painting, as a finishing coat, where the work has been gone over twice with the white lead. I prefer it to white lead as a finishing coat, especially for inside work, as it is not so apt to turn yellow. If you wish *to produce a dead-white finish* to your work, you can do so by using the zinc white as you take it out of the keg, without any oil, taking nothing but naptha to mix it with. Pour on your naptha to the zinc paint and stir up with a paddle. You might, however, put in a little boiled oil, as you will find it work easier by doing so, say about a teacupful to about half a gallon of the paint. The white paint here spoken of is, what is called by painters, flat-color or flatting, and is rather difficult for a person not used to painting to spread even; but a little practice will obviate this difficulty. The proper method of painting a door, for

instance, with this flat color, is to commence with the panels, and having finished them, to proceed with the stiles, and you must try to work the color as quick as you can, in order to prevent it from setting before the door is finished, and if it should happen to set, it must be rubbed up with fresh color, so as to give it a uniform appearance. I will now proceed to describe another method of finishing inside work.

China White, a beautiful glossy white, may be obtained by using what is called China white, which is zinc white ground up in Demar varnish. You can procure it put up in cans of five to ten pounds each, and is sold at the paint stores in most large towns. You will also have to procure some Demar varnish, which can be bought at most color shops, and take out your China white and mix with the Demar varnish, using the varnish as though it was oil, pouring it on the China white and mixing it up thoroughly with a wooden paddle. If it should be too thick to spread freely, pour into it a little naptha; and we will suppose now that your work is ready to receive the finishing coat of China white; that is, it has had two or three coats of white lead paint, and is perfectly dry, and has been rubbed down with sand-paper and well dusted, that is, perfectly free from all dust, as you will have to be very particular about putting on this finishing coat, or else it will not look well. You can now take your China white, prepared as above directed, and with a medium-sized soft varnish brush proceed to lay it on, which you will have to do quickly, as it sets very fast. It would be best for you to use your brush in laying on your white lead paint so as to have it worn a little, as a perfectly new brush is not the best to lay on a finishing coat with, and I will here give a few hints

About the Use and Care of Brushes. Now I do not approve of the shape of the paint brushes in common use; they are made round, and the main object of a painter in using his brush is, to try and make it wear flat. I think that the proper shape to make paint brushes would be to make them like a varnish brush, only with a round handle like a paint brush, but to have the brush of a flat or oval shape. Now, the

great difficulty with a person that does not understand painting is, to keep his brush in a proper shape. They will keep turning it round and round as they use it, and cause it to wear to a point, which is very objectionable and completely spoils it. A brush to work well and spread the paint even should be worn flat. It is a good plan in using a new brush when you have done with it at night, to lay it flat on a board, so that the bristles may be spread out like a fan, and in the morning it will be found in a flat shape, and by continuing to use it without turning it round, it will wear into the proper shape to do good work; but you must be careful and do not leave your brushes out of the paint for any length of time, for if you do so they will get so hard that you cannot use them, and they will be spoiled. The best way is to leave them in the paint that you are using, or else in oil, or you can put them into water, but be careful that the water does not come up any further than about half way of the bristles. It must not reach the binding of your brush, that is, if it is bound with cord, for if the water covers it your brush will burst, by the water causing it to swell, and your brush will be spoiled. The best brushes, made of the best bristles, are to be used in doing fine inside work. For outside work the common brush may be used.

I have hitherto spoken of using no other color but white in the finishing coat for inside work, but here I will state, that the white may be tinted of any required color, so as to look very well; for instance,

To make a very light Lead Color with Demar Varnish. Take your Demar varnish and China white, mixed as directed under the head of a "Beautiful Glossy White," and put in a very little black paint, (that is, lampblack mixed up with boiled oil,) say about a tablespoonful to about half a gallon of the paint. Put in a little of it at a time, stirring it well and examining the tint occasionally, so as not to get it too dark, and when you have got it to suit your taste you can proceed to lay it on.

To make another beautiful Finishing Shade. You may take your China white, and having mixed up a very light lead

color as directed above, take a little vermillion, and having mixed it with oil, put a small quantity of it into your light lead color, stirring and examining it until you obtain a tint to suit your taste. You can also make a beautiful Straw Color in the same way, only using chrome yellow, ground in oil, in place of other colors. You can also make an Orange Color, by putting a little vermillion into your straw color as above directed; and, also, a beautiful Light Blue, by using a little Prussian blue in your white finishing paint, and you can convert this light blue into a Light Purple, by putting into it a little vermillion mixed in oil, and vary the shade according to your taste. For a light Buff Color you can use raw umber and chrome yellow; for a Drab, use raw umber in your China white until it suits your taste. I would here remark, that if your finishing coat does not look solid and even when you have put it on, you had better let it get thoroughly dry, and, after rubbing it down with sand-paper, you may go over it again with the same color, and it will then look well and will make a more permanent job.

I will here say, that to do a plain job of inside work, where an extra finish is not required, it will not be necessary to use the Demar varnish and China white, as they are too expensive for common use, but take good pure white lead or zinc white, and use about equal proportions of oil and naptha, and mix your tints as directed for finishing with Demar varnish and China white. The reason why you may use the naptha pretty freely in inside work is, that it is not exposed to the weather, and the less oil used in inside work, the less liable it will be to become discolored by age; but it will have to have a little oil in it, so that it can be washed off and cleaned when it becomes dirty; and here I would say something about cleaning paint.

THE BEST WAY TO CLEAN PAINT.

It is not a good plan to use strong soap in cleaning the fly specks and dirt off paint, as it has a tendency to injure the paint; but if you use soap at all, you had better get a little Castile soap and warm water and clean it with that, using a

woolen rag and also a hair brush to wash in the corners and crevices; but a better way still is to take some whiting, and with a wet piece of flannel, take up as much of the powdered whiting as will adhere to it, and with this rub the paint, and it will remove all the dirt and grease; then you can wash off all the whiting that may remain with cold water, and wipe dry with a soft cotton rag. The paint will then look clean and fresh, and will not be injured by the operation.

TO PAINT BRICK HOUSES ON THE OUTSIDE IN OIL COLORS.

It is sometimes very necessary to paint brick houses on the outside, as it preserves the soft brick from being injured by the weather, and also keeps the damp from penetrating through so as to make the house damp inside. Painting brick houses also gives them a more uniform appearance. It is customary to paint brick houses of a red color, but a stone color looks very well, and any shade can be given to the color that may be required. It is sometimes necessary, where the brick is very soft and porous, to go over it with size before painting in oil, as this will prevent the brick from absorbing so much of your oil paint, and your work, when finished, will have a better gloss. I will here give directions to make the sizing for a brick house. To make four or five gallons of sizing you must take about one pound of common glue and cover it with water, and let it stand to soak all night. In the morning it will be converted into a jelly, and can be easily dissolved by warming it a little. You can then pour this dissolved glue into four or five gallons of water and stir it up, and if you are going to paint your house red, stir into your size about four or five pounds of Venetian red, and with a common whitewash brush, go over your brick work. When this is perfectly dry you can commence painting with your oil color. If you intend to paint your house a stone color, you can use yellow ochre or whiting in your sizing instead of the Venetian red. The method of mixing the different colors for brick work does not vary much from the method employed in mixing it for wood, only you need not

make your priming quite so thick as you would do for wood work. You can make an excellent red for brick houses by using Venetian red and red lead, in the proportion of about one-half Venetian red and one-half red lead, mixed in either raw or boiled oil, as the red lead will make your paint dry (as it is a drier of itself) even if your oil is raw. You ought to buy your Venetian red and red lead well pulverized and then you will have no occasion to grind it. If you should wish

To Paint a Brick House a Stone Color, you can use yellow ochre and raw umber to the required shade, but recollect that this paint will not dry well unless you use boiled oil or driers in it. All other shades of color that you may desire, can be mixed in about the same manner as directed for mixing them for wood work; a very little naptha or turpentine can be used to make your paint work easy, but be sure and not use it too freely in outside painting, for it causes paint to fade much sooner than it otherwise would. Not more than a pint to a gallon should be used. I will now give some

DIRECTIONS HOW TO PAINT WAGONS, PLOWS, &c.

The directions which I shall here give will be as plain and minute as possible, perhaps more so than would be necessary, provided this book was only intended for those who had some knowledge of painting, but as it may fall into the hands of thousands who have not the slightest knowledge of the art of painting, it is requisite that I should be particular and minute in the explanations given, or else this book will not possess the value and importance which will be attached to it in consequence of the extreme perspicuity and plainness of its directions. If the wagon is new that you intend to paint, you must first get it clean of all dust that may have collected upon it, and take off the bed so that you can get at the running gear with greater ease. You can then raise one of the wheels, and commencing on the upper side of the spokes, keep turning your wheel round until all the upper sides of the spokes are finished. You can then reverse it or turn it the other way, and paint

all the under side of the spokes, and run your paint well in between the spokes, or where they enter the hub; but do not let your paint lodge there and afterwards run over the spokes, as it will not look well. Having finished the spokes, you can then finish the hub. Then go round the rim on both sides, and lastly finish your wheel inside the rim between the spokes. By taking it thus regularly round, you will paint it quicker and better than if you were to try to do it (as young beginners frequently do) by putting a dab here and a dab there, and then have to examine and look round their work to see where they have painted and where they have not. You will next proceed to painting the remaining part of the running gears, such as the axles, coupling-pole, &c. When this is done you have to let it get perfectly dry, then with putty stop up all the cracks you can find, and rub over your work with sand-paper; having done which, you are then ready to go over it with a second coat of paint, which must be a little thicker than the first coat or priming. By thus going over it three or four times and rubbing down each coat with sand-paper, you can get a good finish to your work. If you want to paint the irons black you can go over them with some black paint, taking a small brush to lay it on with. One coat will generally be found sufficient for them if you use it thick enough to cover the irons well. This painting of the irons should be done when all the other part of your work is finished and dry. Some persons will not go to the trouble of blacking the irons, but will paint all over the same color, which will do very well, only it looks better and makes a better finish to the work, and that is about all the advantage blacking has. You can paint the bed of your wagon any color you may choose, but it is customary to paint it a different color from the running gear; but this is only a matter of taste.

To Paint an Old Wagon, you must first get it quite clean from dirt or grease, and if you want to make a good smooth job, you must rub it well down with sand-paper and afterwards commence with your first coat as directed for new wagons, and after it is perfectly dry, put on a second or third coat, or a fourth coat if it should not look well, and

appear to require it. I will now say something as regards the

Paints to be used on Wagons. Red is a very common color for the running gear of wagons, and a blue or a dark green for the bed; but any shade of color may be used to suit the fancy. If you want a good red color for wagons, you can use half red lead and half Venetian red; or if you wish a light red for wagons, use red lead alone or mixed with white lead till you get the shade required. If you want a blue for wagons, use Prussian blue and white lead. You can buy the Prussian blue put up in cans already ground, which will save you the trouble of grinding it. If you should wish a dark green for wagons, use chrome green and a little lampblack, which will look very well. Yellows of different shades are made by using chrome yellow, white lead and yellow ochre. For a black, for irons on wagons, &c., you can use lampblack mixed with a little boiled oil and patent driers or litharge, or else, what is better, get some coach or copal varnish and mix an equal quantity of linseed oil with it, and stir in lampblack until you get it pretty thick; and to make it work easy you can thin it with a little benzine, or naptha, which is the same article under a different name.

The amount of Paint required to paint a Wagon will all depend upon how many coats you may give it, and upon the size of the wagon you may have to paint; but about three or four pints of oil and about five or six pounds of red lead or Venetian red, will be enough to paint an ordinary sized wagon two or three coats.

To paint Plows and other Implements that require painting. I would here remark that the farmer can save money and his agricultural instruments last much longer, by painting them over about once every year, as it not only preserves the wood itself, but prevents the wet getting into the joints and causing them to swell, and after they become dry again to get loose. It also keeps the irons from getting loose and the wood from shrinking so much when exposed to the sun, and then the appearance of them is so much improved. If that was the only advantage it would be worth while to

keep them well painted. You can mix paint for them in the same manner as for wagons, and at any leisure time they can be washed off or cleaned in some way and painted, to do which will cost but a mere trifle, when you mix and use your paint according to the instructions given in this book. I will here say something about

THE METHOD OF PAINTING BUGGIES AND CARRIAGES.

Here I would say, that if your work is new, you must put on several coats of white lead or zinc paint, rendered very drying with Japan driers, and as soon as one coat is dry it must be rubbed down with sand-paper or pumice-stone, and another put on until you get a smooth hard surface, and if the color that you intend to paint (your buggy or carriage) is to be a dark color, it is best to darken your white lead or zinc paint with lampblack. If you have now got a good smooth surface on your work by following the instructions above given, you can commence putting on the color which you wish your work to be; about two or three coats of the color will do, not forgetting to rub each coat with sand-paper, taking care that each coat is perfectly dry before the sand-paper is applied. If these directions have been properly carried out your work will look smooth and solid. You must now take the best coach varnish, and if it is too thick, thin it with a little benzine or turpentine; then, with a good soft varnish brush go evenly over you work, and when that coat of varnish is quite dry, rub it over with sand-paper, which will take off the gloss, but which is to be restored by another coat of varnish. You can give several coats of varnish to your work until it appears to have body enough, then put on your finishing coat of varnish and it will have a beautiful gloss. This is the method generally followed by painters in doing fine work, but where nothing more than a common good job is wanted, you need not take so much trouble or go over so many times with the zinc paint and varnish. In painting old buggies the surface of the work will have to be well cleaned from dirt and grease, and well rubbed down

with pumice-stone or sand-paper, and then lay on two or three coats of the color you wish to use, and varnish a time or two with the best coach varnish.

There is another method of finishing up the running gear of carriages, and which looks very well, and that is to take the work when quite new and rub off with sand-paper, or scrape off, all the black marks or finger marks which may be on it, or which will be likely to show through the varnish, and when this is done and your work looks quite clean, you can then commence (without putting on any paint) to give it a coat of boiled oil with a clean varnish brush, and after this coat is dry you can then give it two or three coats, or more if you want, of the best coach varnish, and the grain of the wood will show through and look very well. You can then paint the body of your carriage according to the recipes given in this book on another page; and there are many persons who prefer this method of finishing the running gear of carriages to that of painting them with any solid colors, and it preserves the wood and lasts just about as long as paint would.

TO PAINT OLD INSIDE WORK.

As it is the design of the author of this work to make it as plain and practical a work on this subject as can possibly be made, I shall now proceed to give a few instructions upon painting the inside of houses, where the wood work is old, greasy and dirty; and as to the time of doing this work, it can be done at any time most convenient, but it is perhaps better to do it during moderately cold weather, for if it is done in warm weather, the flies and little insects which are generally very numerous at that time may prove troublesome, by sticking upon the fresh paint. It is certainly very economical to keep the wood work inside of a house well painted, especially where it can be done without calling in the aid of a regular painter; and it ought to be gone over about once in every two years. Giving it two moderately thin coats will be found better than thick coats, as these latter are more expensive and will not look as well. You

can mix your paint about as thick as rich cream, and you can try it on a piece of board, and if it appears too transparent and does not cover the wood pretty well, you must make it a little thicker, until you get it about right, when you can proceed to laying it on; but first of all, you must be sure that your work is free from dirt and grease, as paint will not adhere well to a dirty and greasy surface; and it is generally the case that the wood work of a kitchen or wash house, where it has not been painted for some time, is both dirty and greasy, especially about the doors. In order, therefore, to get it clean, so that the paint will adhere to the wood, you must take moderately strong soap and wash it off well, then take a clean cloth and a little fresh water and rub it off as clean as you can, or you may take lye instead of soap and use it the same way, or you may take benzine, and with a little clean rag dipped into it you may rub the grease off the surface of the wood, and when your wood work is perfectly dry, you can proceed to laying on your paint. Here I would give a few hints about using your brush. It is a very common fault with persons not used to painting to take too much paint in their brush at one time, and by doing so they drop it over the floor and waste it to no purpose. Now, the best way to do is, to dip your brush into the paint about one inch, or one and a-half inches, and then strike your brush several times on the inside of your paint bucket. You can remove your brush and you will have about the right quantity of paint in it. By observing this rule you will soon be able to do your painting without dropping much paint on the floor. Your paint should be mixed with boiled oil, or else it should have some driers put into it, such as Japan driers or litharge, and then it will dry in about one day, and will soon become quite hard. You ought to use the best white lead or white zinc paint, and by putting into it a little yellow ochre or a little lampblack, you can get some very desirable shades of color. The yellow ochre makes a very durable color for floors and mop-boards, and I would say, that where you paint about sinks and drains, or where sulphurious gases may arise, it is better to use the zinc white in place of the white lead,

as it will not become discolored as soon as white lead, nor will it be so liable to turn yellow. By attending to these simple directions, any one can do their own painting, and it will save a large amount of hard labor which must otherwise be used in keeping the house clean. It will not be necessary here, to say any more about mixing the different shades of color, as I have given plain and simple directions in other parts of this book which can be referred to; but you must be particular and do not let your brushes remain out of the paint to get dry, or else they will be spoiled. You must either keep them in the paint or else in oil, or if you wish to clean your brush when you have done with it, you can do so by using very strong soap-suds and hot water and washing out all the paint, and this is the best plan where you are not going to use it again for some time.

CHEAP PAINTS.

SUBSTITUTES FOR WHITE LEAD.

I will now proceed to give particular directions how to mix a class of paints wherein white lead is not used, but which are very cheap and very durable. I may say that they have been found by trial to be equally as durable and some of them even more durable than white lead paint, and as white lead has become so expensive, these cheap substitutes here recommended will be found to save a great deal of money to those persons doing their own painting, and will make this book more valuable than any work on the same subject that has ever been brought before the public. I will here proceed to give directions how to mix an excellent paint which will dry with a good hard surface, and resist the weather equally as well or better than white lead paint. It is applicable to stone, brick or wood work. It is well known that upon taking fresh burnt lime from the kiln and exposing it to the air even in a dry place, it will crumble and fall into a powder by absorbing moisture from the atmosphere. It is then, when in this state, called air-slacked lime, which is different from lime slacked by pouring water upon it. Now, in order to make this paint, you must take about three quarts of this air-slacked lime, and

two quarts of fine sand, and two quarts of wood ashes; pass all this together through a fine sieve so as to mix the articles well, and also to take out all the lumps. This composition will now have the appearance of a fine grey powder. You can then mix it in a paint bucket with boiled oil, to a proper consistence for working easy. You can put on two or three coats of this paint, the first thin, the second about as thick as you can conveniently use it. This will make a paint of a light gray color, but you can make it of any required color, by mixing it with some of the earthy colors, such as Spanish brown, &c. If you want a good brown you can use burnt umber in it until you obtain the required shade, or you may use the Venetian red and a little lampblack, and that will make a good brown; and to make a stone color, use yellow ochre and raw umber, or a little lampblack in place of the raw umber; or you can make a lead color by using lampblack until you obtain the desired shade. To make a fawn or drab color, you can use yellow ochre with a little Venetian red, which will make a very good color for a house.

You can also make a paint that looks well and stands the weather very well, by using Venetian red and boiled oil, mixed to the proper consistence to paint with. This paint will not require any white lead and comes cheap, and will do for either brick, wood or stone.. Yellow ochre can be used in the same way without any white lead.

Another Cheap Paint can be made by using finely pulverized hydraulic cement, mixed in boiled oil, but as this has not much body, it is improved by putting into it a little white lead. Any color desired may be given to this by using the colors as directed in the other cheap paints.

Another Cheap Brown Paint for Barns, Outhouses, &c., may be made by using boiled oil, mixed with Spanish brown to a proper consistence to paint with. This makes a very good cheap and durable paint, but is not suitable for fine work. You can use whiting, or as it is sometimes called Spanish white, to make this color lighter, and if you should wish to modify it and remove its reddish appearance, you can use lampblack until the shade desired is obtained.

I now come to speak of a class of colors, called by painters

DISTEMPER OR SIZE COLORS.

I would here remark that these colors are useful only on the walls and ceilings of rooms, where they are not exposed to the weather, as the article used to make them adhere to the surface of the work is size, and it would not bear exposure to the weather, but would wash off with the rain. As these colors can be easily applied by any one, and as they cost but a trifle compared with oil colors and look very well, I will proceed to give particular directions how to mix and apply them. In cleaning up houses in the spring, by applying a coat or two of these colors to walls that are not papered, it will add very much to the clean appearance of the rooms. In the first place, I will explain

How to prepare the Size for these colors. The best size that can be used for distemper colors is that made by boiling and soaking the skins of animals, which contain a kind of transparent glue, and which is considered superior to the common glue of the shops, where a delicate color is required to be used. You may take the skin of animals and cut it into shreds, and let it soak about a day or two in water, and when sufficiently soaked it is then to be boiled in the same water in which it has been soaking, taking care not to let it burn, which might discolor your size. If any scum arise it has to be removed, and if the water should boil down you must keep filling it up. When it has boiled about five or six hours, you can then remove it from the fire and strain it through a coarse cloth, and if you intend to keep it for any length of time, you must dissolve about two pounds of alum in boiling water and add this to every pailful of size; it can then be kept in a cool place for a long time without spoiling. Now, it must be understood, that it is not necessary to go to all this trouble, only where very delicate colors are to be used. A much easier way of making the size will be to take the common glue of the shops, and by soaking it all night in water it will appear like a jelly, which will soon dissolve by warming it, and it is then ready for use. I would here say

that you may know when you have got the size thick enough, by letting it cool, and if it appear like a weak, trembling jelly, it will do. From about four to six ounces of glue will be enough for two and a half gallons of water, and in mixing in your colors you must not make it too thick, that is, you must not put in too much of your color, as it will be apt to peel off, but it should be about the consistence of cream, and your color should be applied to the walls when cold, as you can then make it look more uniform. I will now proceed to give some instructions as to the method of mixing the different shades of color to be applied to your plastered walls. I would however say, that your walls should be brushed down with a coarse broom before applying the color, so as to remove all dust and dirt that may have collected on them.

To make a Straw color in Size. Take whiting (or as it is sometimes called Spanish white) and mix it in your sizing—you need not be particular in breaking the lumps in the whiting, as it will all dissolve in the size—and when your color looks white and is about as thick as cream, you can then put in some well pulverized chrome yellow, until you obtain the desired shade.

To make several shades of Drab in Size. Dissolve your whiting in the size as directed for straw color, and when sufficiently dissolved you can put in raw umber until you have a shade to suit your taste; if you want a different shade of drab you can use burnt umber. Before going any further, I must say that it is very difficult for a person who is not used to mixing these colors, to know when they have got a shade that will suit them, and the only way they can proceed *to ascertain the shade of color that is mixed in size,* is to take a piece of board and putting some of your color upon it, you must then let it dry, and you will then see the shade it will be when laid on your walls and dry. A color that looks very dark while it is wet will be very light when dry.

Other shades of Drab may be made by using yellow ochre and whiting, until you have produced a strong yellow, and then rub up some lampblack in vinegar and mix in your yellow color until you get the shade you may require.

Another shade may be obtained by using a little Venetian red in the above color, and by so using more or less of these pigments, a variety of shades may be obtained.

A good Blue for Size may be made with indigo and whiting mixed up in the size, and if you wish to make a dark blue, you can use a little lampblack rubbed up in vinegar, or you can use more of the indigo; you can also use Prussian blue instead of indigo.

A good Green in Size. A good green of any shade may be made by taking the blue color, mixed as directed in the article on Blue, in size, and putting into it some well pulverized chrome yellow, and you can get a green of any shade by properly varying the amount of yellow put into the blue, as it is a well known fact that blue and yellow will make a green.

To make other Greens. You can use chrome green or magnesia green mixed in your size with whiting, until you get the shade you may require.

To make a Gray Color of any Shade, you can use lampblack mixed up in vinegar, and then mix in your whiting in size; and you can obtain any required shade of gray. According to the amount of lampblack used, you can have a dark or a light gray. The reason why it is recommended to rub up the lampblack with vinegar is that it is very difficult to make it mix in water on account of its greasy nature.

To make other Grays, you can use Venetian red and indigo or Prussian blue, which will make grays of different shades. Grays of a fine shade and for fine work may be made by using lake (which is a red pigment of a vegetable nature) and dissolving it in water; add it to your whiting in size, and then taking indigo dissolved in the same manner, mix it into your red or flesh color obtained from your lake, and according to the amount of indigo so you can regulate your shade of gray. You can use rose pink in place of the lake, but it is not as durable a color.

To make a Flesh color in Size. You can, for this color, use Venetian red; mix it into your whiting and size until you obtain the required shade.

To make a Purple, you can put into the flesh color last mentioned, a little lampblack, until you get the shade you want.

A very good Yellow in Size can be made with yellow ochre mixed with whiting.

A good Orange color can be made by using chrome yellow and Venetian red, mixed with whiting in size.

To lay on these colors in Size, you can use a large paint brush or a whitewash brush, and a small brush to work in the corners and around windows and doors. About two coats will be required to make it look uniform.

GENERAL VALUABLE RECIPES FOR MAKING CHEAP PAINTS.

The following recipes will be found of great value to any persons that may wish to improve the appearance of their houses at a trifling expense. These cheap paints will be found to last nearly as long as common oil paint, and will be found vastly cheaper; in fact, the cost is scarcely anything except the labor of putting it on.

A good substitute for Oil Paint. I will here say that where the siding of a house is rough, not dressed, or much weather-beaten, these cheap paints will last much longer than on smooth siding, and it is a very good plan to have the corner boards, and the cornice, and the window facing, &c., all dressed smooth and use oil paint on them, after you have put the cheap paint on the rough siding. You can make the oil paint of a different color from the siding, for instance, a cheap yellow or straw color with white trimmings and white doors looks very well, or brown with white trimmings, or buff with white trimmings.

The following is the method of mixing this cheap paint: Take a peck of unslacked lime and use boiling water to slack it; cover it during the process to keep in the steam, and when it is all slacked, add to it one-half peck of salt, previously dissolved in boiling water. Then boil three pounds of ground rice to a thin paste and stir it in boiling hot. Then

take one-half pound of glue which has been soaking in water all night, and melt it over a slow fire. The glue will readily dissolve after soaking, and when it is all dissolved, pour it into your paint and stir all up together, adding water to it, which would be better if hot. Put into it enough water to make it about the thickness of cream, but do not put it on too thick, as it is better to give two or three thin coats than one thick one. This mixture, after being stirred well, should stand where it will be free from dirt, two or three days before being used. It is better to put it on hot if you can conveniently do so. It could be kept hot in a kettle on a portable furnace. If you cannot procure the rice ready ground, you can have a few pounds ground at any flouring mill. If it should get a little wheat flour in it, it would do no harm. You can lay it on with a whitewash brush or a large paint brush, but if you use a paint brush, be sure and do not get one that is bound with twine, for if you do it will come all to pieces in using it. You can get a wire bound, or a copper bound brush, and that will not be injured. You will have to use a small brush to work in the corners and places that you cannot get at with your large brush. The color of the paint made according to the foregoing recipe is white, but you can make it of any shade you may require by observing the following directions: If you wish a red or a pink, more or less deep, you can put in Spanish brown or Venetian red, until you get the shade you wish. A delicate tinge of this looks very well for inside walls. Finely pulverized common clay and Spanish brown stirred into the paint makes a slate color, which looks very well and is very suitable for the outside of buildings. Lampblack mixed with Spanish brown or Venetian red, makes a brick color. Yellow ochre stirred in, makes a yellowish color, more or less deep according to the amount used. It is impossible to give the exact proportions of coloring matter to be put in to make certain shades, and the only way that you can get the shade you want, will be by putting in your coloring matter and trying it on a shingle or a piece of board, letting it dry, and then if it is too light, put in more color.

Another Cheap Paint. Where this cheap paint is required for fences or buildings where cattle will have access to them, it is better to mix it without salt in it, and the following recipe will be found excellent: Take about two bushels of lime and throw hot water on it in a barrel, and cover it over so as to keep in the steam until it is slacked; then dissolve one pound of borax in hot water and pour that into it; then put in twelve pounds of brown sugar and one gallon of molasses, and six pounds sulphate of zinc dissolved in water; then stir all up together with equal quantities of skim milk and water. It will not matter if the milk is just beginning to sour; but it must not be very sour, as it will not answer the purpose so well. You can put any coloring matter in this as before directed in the other recipe, and it will make a very permanent paint, and will preserve buildings from the weather nearly as well as oil paint; and some persons who have tried it, think it better than oil paint.

Another Cheap Paint. A cheap and durable paint may be made of the following ingredients, and it will be found to be more durable on rough unplaned boards than on smooth boards; and is also very useful on brick or stone houses, as it will resist the action of the weather for years, and can be renewed at a very trifling cost: Take one bushel of unslacked lime and slack it with hot water, covering it to keep in the steam, and when it is slacked, add the following ingredients, —twenty pounds Spanish whiting; eighteen pounds salt; fourteen pounds coarse brown sugar; and stir all well up with about thirty-five gallons of water. Let it stand a day or two before using it, and when required for use, it can be stirred up well, and it is then ready to be laid on. It can be colored by using yellow ochre to make it a yellow color; or take two pounds of copperas,—or which is the same thing, sulphate of iron,—and dissolve it in water and pour that into it, and it will turn it a yellow color; and by using a little Venetian red in this yellow, you can make an orange color; and for a drab, you can use raw umber; and for a lead color, you can use lampblack—but as it is very difficult to make the lampblack mix with this paint, you will have to take some slacked lime

in powder and mix your lampblack and lime together thoroughly, and then pour in a little water and mix it up into a paste; and when you get it well mixed, you can then pour it in and stir all together; then try the color on a board, letting it dry; and if not dark enough, put in more lampblack; —for a brown, you can use Venetian red and lampblack mixed; and so on with the other colors, as before directed. Put on two or three coats of this color and it will last for years.

A Cheap Milk Paint. A paint that is very useful and durable can be made with skim milk in the following manner: Take four ounces of quick lime and slack it by wetting it with skim milk, and add to this one and a half pounds Spanish whiting; add more milk to make it of the consistence of thick paste; then add to this about half a teacupful of linseed oil, dropping in the oil a little at a time, and stirring well together until thoroughly incorporated; then pour into it about one quart of skim milk, and stir all up, and your paint is then ready to use. It will take two or three coats for new wood, and about two coats will do for walls and ceilings. Different colors can be given to this paint by using the ochres and umbers, and Venetian red, &c. If it is required for fine work, it can be strained through a coarse cloth. In order to make the foregoing paint suitable for outdoor painting, you must use Burgundy pitch melted in oil, in the proportion of one ounce of pitch to half a teacupful of the oil. It is best to reserve about half of the whiting and then sift it gently on the mixture, and that will carry down any of the oil which might be floating on the top.

A SUBSTITUTE FOR OIL IN PAINTING.

Skim milk can be used for inside painting as a substitute for oil, and it will answer a very good purpose; and if the milk is curded it will answer, but it must not be sour. Grind up with milk, yellow ochre for a yellow; or if your colors are well pulverized they will not require grinding, but just mix them up in the skim milk until thick enough to cover your work slightly. Do not make your paint too thick, or it will

be apt to scale off. Two or three thin coats are better than thick ones. By using raw umber in the yellow, you can make a good buff color; and a little Venetian red to the yellow ochre will make an orange. For blue, you can use indigo or Prussian blue and whiting, or Spanish white; and by putting a little Venetian red into your blue, you can make a purple color. A lead color can be made by using Spanish white and lampblack.

Another Cheap Substitute for Oil in House Painting. The following is a very valuable recipe for making a paint that will be found to be, in many respects, equally as good as oil paint, and will not cost one tenth part as much as oil paint; it can be used for outside painting as well as inside, as it is quite waterproof: Take two and a-half ounces of potash and put it into two gallons of water, in an iron or brass kettle; then take six ounces of beeswax and cut it up into small pieces, and put it into the kettle with the potash and water; then take two ounces of yellow ochre and three ounces of raw senna pulverized very fine, and stir all up together, and boil it about two hours; then apply this paint hot, and when one coat is dry put on another. It will require about two or three coats to look well. It will be of a yellowish color; but any color can be added to it to change the shade. A little umber will make a buff color, which will look very well; Venetian red, mixed in the yellow, will make an orange; and so on with the other colors, making the shade to suit your taste.

TO MAKE A VERY ECONOMICAL HOUSE PAINT.

The cost of the following paint will be a mere trifle, and any farmer can make it and paint his own house at his own convenience: Take fresh curds and break up the lumps, and mix them with an equal quantity of lime, which has been slacked with a little water, and stir the curds and lime well together, and you will obtain a semi-fluid mass of a white color, and this can be used as a paint; but it will have to be used the same day that it is prepared, as it will spoil by keeping it. You can mix any color with it that you may wish. Give your work two or three coats; and when dry it can

be polished with a woolen cloth, and it will appear as if it was varnished. You must not use any water in mixing it up, as it will spoil its appearance and injure its durability.

TO MAKE A WATER-PROOF AND FIRE-PROOF PAINT.

The following paint will be found very useful for the roofs of houses, and is said to last longer than common oil paint, as it has the advantage of being both water-proof and fire-proof: Take unslacked lime and slack it in a barrel with hot water, covering it to keep in the steam; then take a fine sieve and sift about one gallon of the lime, which will then have the appearance of fine flour; to this add three pints of rock salt and one and a-half gallons of water; then boil all together for about half an hour, and if any scum arises take the scum off clean; then add one pound of alum and three-quarters of a pound of copperas, and stir all together; then take three-quarters of a pound of potash dissolved in hot water, and add this to the mixture, a little at a time, stirring it at the same time; then put in one gallon of sand or wood ashes sifted very fine. You can then add water to it (if it is too thick) to make it about as thick as cream. Give your work two or three coats, and color it to suit your taste. This preparation is considered (by those who have tried it) to be as durable as any paint that can be used; it is an excellent preparation and should be universally known as being fire-proof; it would be the means of preventing many a house from being burned down; and it is also an excellent preserver of shingles.

A GOOD BRIGHT BLUE COLOR FOR WALLS.

Slack lime with hot water so as to make a good whitewash; then for every gallon use one and a-half pounds of blue vitrol dissolved in boiling water, and one-quarter pound of glue also dissolved in boiling water; then mix the whole together, and lay on two or three coats.

TO MAKE TAR PAINTS FOR ROUGH WOOD WORK.

Gas tar, which can be bought very cheap at the gas works, will make an excellent paint by mixing it with different

colors. It is certainly an excellent preserver of wood, and would be more used than it is, if it were not for its black color; but this can be modified by using light colors to mix with it. For instance, you can take yellow ochre, or Spanish brown, or Venetian red, and any of these will improve its appearance. It should be applied warm, as that will make it work easier, and you must use a large paint brush to lay it on with. You can thin it with a little boiled oil, and it will improve your paint. It is excellent to paint fences, or grape trellises, or frames for hot-beds, as it will drive away all insects that might infest your plants.

TO MAKE AN EXCELLENT CEMENT FOR STOPPING LEAKS IN HOG TROUGHS, WATER TROUGHS, &c.

Take gas tar and mix quick lime with it until it forms a putty sufficiently stiff for your purpose.

Another Cement for Stopping Leaks in Roofs and Round Chimneys, &c. This cement will become, in the course of time, as hard as stone. Take twenty parts by weight of clean sand, two parts of white lead, two parts of litharge and one of whiting and mix all into a putty with linseed oil. For stopping the seams in roofs, you can take white lead, oil and sand and run it into the seams or cracks, and it will effectually stop the leaks.

Other Uses of Tar Paint. Gas tar made into a paint with Spanish brown or yellow ochre, will be found very useful in preserving iron from rust when exposed to the weather, and also it is an excellent material to use on fence posts, as it will prevent them rotting and preserve them for years. You can smear your posts over with the paint, by laying it on thick with a large paint brush on that part of your post which is to be buried in the ground, and three or four inches above the ground. A good plan is to have your tar paint in a tub or barrel, and dip the end of your post into it, and put it immediately into the ground; this will be found a quicker way than using a brush. This paint is also very useful in painting over the timbers and joints (that are exposed to the

weather) in buildings, as it will exclude wet better than oil paint. This paint can be made a grayish color by using white lead in it.

VARNISHES.

As it is the object of the writer of this book to make all the different recipes as plain and as practical as possible, so that any person can follow with ease the directions given, and as the manufacture of varnishes involves considerable expense in obtaining the aparatus necessary to carry it on, and as most of the varnishes can be procured at any of the paint shops, it will not be necessary to devote much space in this book in giving recipes and directions that would be of no practical value to any one except those carrying on the business of varnish making, but I will here observe that there are some simple varnishes that can easily be made by any one, and these I shall give directions for making. The different resinous and gummy substances are principally used to make varnishes, and these are generally dissolved in some vehicle that is capable of dissolving them — for instance, spirits of turpentine, alcohol, and different kinds of oil are used for this purpose, and latterly benzine or naptha has been used by the manufacturers of varnish, as a substitute for turpentine, but it does not make as good and durable a varnish as turpentine. A varnish, to be really good, should be clear and free from all impurities, and should possess durability and hardiness. The principal gums and resins used in the manufacture of varnish are gum copal, stick lac, shellack, gum mastic, gum arabic, gum elastic, dragon's blood, rosin and gum anima, and all those gums that are free from impurities and appear clear and transparent are to be preferred. These articles are frequently adulterated, but it is necessary, to make a good varnish, that they should be procured as pure as possible and as free from foreign substances as they can be obtained.

To make Oil Varnish. Take boiled oil, one gallon, and put it into a kettle, and set it on a gentle fire; then put into the oil, a little at a time, two pounds of clear rosin, beat up fine,

and let it dissolve, and when perfectly dissolved take it from the fire, and when nearly cool, pour into it three pints of spirits of turpentine, and if too thick, add more turpentine. This varnish will be found very useful for common purposes where a cheap varnish is required. It preserves wood and will not be injured by hot water.

To make Rosin Varnish. Melt rosin in a varnish kettle and remove it a distance from the fire and pour in, gently stirring it at the same time, as much spirits of turpentine as will make it thin enough for use.

A Waterproof Varnish for Linen or Cotton can be made by taking one pint of linseed oil, four ounces of litharge, and one ounce of sugar of lead; the litharge and sugar of lead should be ground very fine before being put into the oil, and when these ingredients are thoroughly incorporated, pour in one-half pint of spirits of turpentine, and mix all together; it is then fit for use.

To make a Varnish for Tracing-paper. Transparent tracing-paper, such as used by painters to take a copy of a print or drawing, can be made in the following manner: Take one pint of boiled oil and one-half pint of turpentine, and mix them together, and with a clean brush, spread it upon clean writing paper, and when it is dry it will be quite transparent, so that by laying it flat on a print or drawing, every line can be distinctly traced. This is an excellent method of copying patterns of different kinds.

Copal Varnish that can be made without heat. You must procure the very best gum copal for the purpose of making this varnish, as it is necessary to have it pure, or else it will not dissolve. Then take your copal and beat it up to a very fine powder, and sift it through a fine sieve, and put it into a glass vessel, only putting in a quantity sufficient to cover the bottom of the vessel to the depth of about one inch. Then pour on essence of rosemary enough to cover the copal and stir all up together. When it is sufficiently dissolved, let it stand for about two or three hours; then pour on to it some pure alcohol, a few drops at a time, shaking it up so as to distribute it over the mixture in the vessel. Keep pouring

in the alcohol, a little at a time, until you have put in enough to make it fit for use. You can then let it stand for a few days, and then pour off the clear varnish and keep it for use. This varnish will be found very superior for all fine work.

To make a Colorless Copal Varnish. There are a great many combinations of the different materials of which varnishes are composed, that are really of little practical value, and almost every varnish manufacturer has some composition which he may consider superior to any other, but I shall confine myself to a description only of those varnishes which are easily made, and which have been found by experience to be of superior excellence; and it will be well to observe here that varnishes of all kinds should be made either in the open air or else in some place that is fire-proof, for when heat is applied to them, the most of the articles used in the manufacture of varnishes are of such an inflammable nature that without the greatest care, there is danger of them taking fire, and it is always a wise precaution to have ready at hand a wet blanket to extinguish a flame in case of accident. The best kind of vessels to use in making varnish are glazed earthen vessels, as these are considered better than either copper or iron. I will now give directions for making a copal varnish, which is free from color, and is considered an excellent varnish. It is suitable for outside work, and will retain its lustre for a length of time. Take three pounds of the best gum copal and melt it in a clean varnish kettle, over a clear fire. The kettle should not be more than three parts full, and particular care should be taken not to burn it. When your copal is sufficiently melted, then pour into it two and-a-half pints of bleached linseed oil which has been made hot in another vessel; stir this mixture well together, and when these materials are properly incorporated, take the kettle from the fire and keep stirring it until it begins to cool. Then add, gradually, four pints of spirits of turpentine. If this much turpentine should make it too thin, do not put in so much, and if not thin enough, put in a little more until your varnish is in a proper state for use.

N. B. This varnish can be improved by putting into it

about seven or eight grains of corrosive sublimate. Grind the sublimate on a slab with a little oil, and mix with the spirits of turpentine, and pour it into the varnish, stirring all up well until thoroughly incorporated. The varnish is then ready for use, but will improve by age.

To make Mastic Varnish for Varnishing Maps and Pictures. Take about three ounces of pure gum mastic, reduce it to a fine powder and put it into a glass bottle. Then pour upon it one pint of spirits of turpentine, and set it in a warm place or else in the sun, and shake it up frequently, and in a few days it will be all dissolved. It is then ready for use, and in order to prepare prints or drawings for this varnish, you must give them one coat of thin size, made by dissolving a little isinglass in water, and when quite dry the varnish can be applied with a clean varnish brush; and if one coat of varnish does not make it shine enough, you can put on two or three.

Another Varnish for Maps or Pictures. A very good varnish for maps or pictures can be made in the following manner: Take one and a half ounces of Canada balsam and three ounces of spirits of turpentine, and mix them together in a glass bottle, and when the balsam is all dissolved in the turpentine it is fit for use. But before applying it to the maps or pictures, they must first be covered with a size made with isinglass in water, and when this is quite dry, the varnish can be laid on with a camels' hair brush. This varnish, when properly applied, will give to colored pictures the appearance of oil paintings.

Another Varnish for Pictures and Drawings can be made by mixing the white of eggs with loaf sugar, then pour in some lime water until it is of a proper consistency for varnishing. Two or three coats can be laid on.

To make Gum Elastic Varnish. Take one pound of gum elastic and cut it into small pieces, and put it into a vessel containing one pint of linseed oil. The oil must be boiling hot when the gum elastic is put into it, and it must be placed on the fire again and kept boiling until the mixture appears clear, and when it is taken from the fire and begins to cool,

you can pour into it one pint of spirits of turpentine, stirring all together, and when quite cool it must be strained for use. This varnish dries very slowly, and on that account is not much used.

To Bleach Oil for making colorless Varnish and other purposes. Take a shallow vessel that will hold about two or three gallons, or as much oil as you may wish to bleach, and cover the bottom of your vessel with white lead to the depth of about four or five inches: then pour on to this your linseed oil and expose it to the rays of the sun for several days, or until it becomes fat and colorless, it will then be fit for use. The vessel in which you bleach your oil must be covered with glass, to keep out the dust and to admit the rays of the sun. French yellow is frequently employed in place of white lead, and is considered to be more powerful in its bleaching qualities. It is used in the same manner as the white lead.

To make Shellac Varnish for covering the knots in pine wood. Previous to painting, the knots in pine wood should be covered with a preparation, called by painters knotting. Various materials are used for this purpose, and shellac varnish made according to the directions here given, is found to be as good a material as can be used. Take the best shellac finely powdered, two ounces, and dissolve it in one pint of the best rectified spirit of wine; it can be dissolved without heat if the alcohol is strong enough, by putting it into a glass bottle and shaking it frequently.

To make a Black Varnish, used for grates and to cover iron work. Melt in an iron kettle over a slow fire, four pounds of asphaltum, and when properly melted, pour into it by slow degrees, one and a half pints of boiled linseed oil; stir all together until thoroughly incorporated, then remove it from the fire, and when nearly cold pour into it three pints of spirits of turpentine, and if this should not be enough turpentine to make it thin enough for use, you can put in more until it can be worked easy.

To make Black Japan Varnish. The following directions given for making black Japan varnish will be found very

useful to those who want to make a varnish that is suitable for leather: Take four ounces of asphaltum and melt it in an iron kettle; then pour into it five pints of boiled linseed oil, and when these materials are thoroughly incorporated, put into the mixture five ounces of burnt umber in powder, stirring all together; then add sufficient of spirits of turpentine to make the varnish of a proper consistence.

N. B. Remove the vessel from the fire and let the materials cool before putting in the spirits of turpentine.

To make Copal Varnish with Alcohol. Take two ounces of gum copal and reduce it to a fine powder; take also three-fourths of an ounce of shellac, which must likewise be reduced to a fine powder; put both of these materials mixed together into a bottle, and pour upon them three pints of alcohol; place the mixture in a warm place and shake it occasionally until the gums are completely dissolved, afterwards strain it for use.

There are a variety of ways in which copal varnish can be made, but the recipe given above will be found both simple and easy, and where a spirit varnish is required it will answer for all common purposes. I will here reiterate what I have already said with regard to the great danger that there is in making varnishes, where heat is to be applied, as the materials used are so liable to take fire, unless the greatest caution is observed. A very good plan is to use what is called a sand-bath, that is, one vessel containing sand is placed upon the fire, and the vessel containing the varnish is placed inside the one containing the sand, so that the sand may surround it, and by that means the heat is more uniform. A water bath is the proper heat for spirit varnishes. The varnishes prepared with oils are considered much better in many respects than those that are called spirit varnishes. The oil varnishes are more suitable for any kind of work which has to be exposed to the weather—they are more durable and elastic and are less liable to crack; but spirit varnishes, when well prepared and made of good materials are very brilliant, and may be used for furniture, or any work that is to be kept within doors. Varnishes of all kinds

should be kept in vessels that the light cannot penetrate, as it will frequently have an injurious effect on varnish, rendering it thick and unfit for use.

TO VARNISH FURNITURE.

If you have much varnishing to do you had better purchase a varnish pan, which can be had at any color shop. They are made of different shapes and sizes; some with a false bottom and the space between the bottoms filled with sand. This makes it convenient in cool weather, as the sand being heated by placing it on a stove or over a fire, keeps the varnish warm and causes it to flow more readily from the brush. A good soft varnish brush is also another article required to do a good job of varnishing. If the furniture that you are going to varnish is old, it will have to be well cleaned by washing it with soap and water, so as to remove every particle of dirt and grease, and when it is quite dry it can be rubbed over with sand-paper, so as to make the surface as smooth as possible. When this is done, you can proceed to varnishing, and it ought to be done in a warm room or else in warm weather, so that the varnish may flow evenly on the surface of your work. If the varnish should be too thick, it can be made thinner with spirits of turpentine. You can use either copal varnish or else furniture varnish, which you can purchase at the color shops; and any person, by following the directions here given, can varnish their own furniture, making it appear as good as new. It is necessary to be careful and not get any dust on newly varnished furniture, and also to see that your varnish brush is perfectly clean and free from loose hairs; and it is a very good plan to have a piece of wire stretched across your varnish pan to clean your brush on, and be careful not to take too much varnish in your brush at one time. Lay on your varnish as regular and even as you can. By a little practice you can soon acquire a good use of the brush. If you wish to get a good body of varnish on your furniture, you can put on two or three coats, letting each coat get perfectly dry before putting on another; and it is as well to rub each coat

down by taking a piece of woolen cloth and a little pumice-stone in fine powder, and make the cloth wet by dipping it into water and squeezing it out as dry as you can, and then sprinkling on a little of the powdered pumice-stone, and rub your varnish over when it is perfectly dry, but be careful that you do not rub through the varnish. By a little practice any one can avoid this, as a very slight rubbing is sufficient until you get sufficient body of varnish to work upon; but in varnishing furniture where a considerable degree of polish is not required, this rubbing down with pumice-stone can be dispensed with.

To Varnish new Furniture. In varnishing new furniture you must first examine it to see if there are any cracks or nail holes, and if there are they must be stopped with putty, made with a little oil, mixed with whiting and a little Venetian red put in until you get the color of your furniture. If this should make your putty too red, you can use a little umber mixed in it until you get the shade required. When all the nail holes and cracks have been stopped, you can (if you wish to economize in the use of varnish) give your furniture a coat of boiled oil, which is much cheaper than varnish, and it will answer for the first coat equally as well. It is the custom of some varnishers to use a thin coat of sizing for the first coat, and this sizing is made by dissolving a little glue in water. When your first coat is quite dry, you can then proceed to laying on your varnish, which you can do according to the directions given for varnishing old furniture. To give a good gloss, two or three coats will be required.

TO POLISH FURNITURE WITH WAX.

Furniture can be polished with wax, so as in some degree to resemble varnish, but it does not possess the brilliancy of good varnish; still, the ease with which it can be applied to furniture, and the cheapness of the material, will always render it a favorite process with house-keepers. Melt beeswax over a clear fire, and when melted remove it to a distance from the fire, and pour into it enough spirits of turpen-

tine to make it of the consistence of thick paste. When used you can spread a little on a woolen rag and rub on your furniture and polish with a woolen cloth. Several applications of this furniture paste will give a good gloss.

TO TAKE INK-SPOTS, &c., OUT OF FURNITURE.

The spots in furniture should all be removed before varnishing, and this can be done by using spirits of salt diluted with a little water, using a piece of rag to rub it on, and as soon as the spots disappear wash off with clear water and rub dry; or a little oxalic acid and butter of antimony, dissolved in a small quantity of water. The best way of using these washes, is to tie a piece of rag on a stick, and this can be used to rub the spots so that the fingers will not get wet with the compound, as it is poisonous.

TO MAKE PASTE FOR POLISHING FURNITURE.

Take one ounce of beeswax and scrape it up in a tin cup or basin, and add to it two teaspoonsful of powdered resin. Melt the two together and put into it as much Venetian red as will color it, and when all is melted and thoroughly mixed together, remove it from the fire and pour into it as much spirits of turpentine as will make it of the consistence of thick paste; rub this paste on with a woolen rag and polish by rubbing with a woolen cloth.

TO STAIN WOOD DIFFERENT COLORS.

There are a great many different methods of staining wood, as practiced by painters, and as it is getting to be very much in the fashion to stain wood of some dark color, instead of painting it, I will here describe several different processes: A very simple and expeditious way of staining wood is to mix the colors in benzine or naptha, and rub them on with a rag or brush.

To Stain pine wood a Light Red. Take Venetian red and pour on benzine, making it quite thin, then with a brush rub over your wood to be stained, and when it has dried in,

which will be in about half an hour, rub over the surface with a cloth and that will remove the color that has not penetrated into the wood; and if it has not color enough, put on another coat and rub off again. When this is done you can varnish it over first with boiled oil and then two or three coats of good varnish.

To Stain a Walnut Color. Proceed as directed for the red stain, but put into your Venetian red a little burnt umber, until you get the color you wish.

To make an Oak-Colored Stain. Melt about four ounces of asphaltum and one tablespoonful of boiled linseed oil, and when this is thoroughly mixed remove it from the fire, and when it has cooled a little pour into it enough spirits of turpentine to make it thin enough for use; this can be laid on with a brush in the same way as directed for the other stains.

Another method of Staining Wood Red. Take dragons' blood and dissolve it in alcohol; the proportions to be used are one and a half ounces to a pint of alcohol. This will make a good red stain by being brushed over the wood, and when dry, varnishing.

A good Black Stain for Chairs, &c. Take some pieces of iron and immerse them in strong vinegar, and add a teaspoonful of verdigris to every quart of vinegar, letting it stand several days. This will make a good black stain.

To Stain in Imitation of Mahogany. Boil three-quarters of a pound of madder-root in one gallon of water for two hours, and apply it boiling hot to the wood, repeating the application until the proper color is obtained. By passing a brush dipped in the black stain over this red stain, in imitation of the dark grain of mahogany, will produce a very good effect.

Another good Mahogany Stain. To make this stain you must dissolve dragons' blood in alcohol, and put into it some fustic chips, and let the mixture stand in a warm place for several days, then strain for use. Make the dark grain as directed in the other mahogany stain.

To Stain in Imitation of Rosewood. Use the red stain made as before directed with dragons' blood, dissolved in

alcohol, and when you have stained your wood with this, then take a flat brush and cut out some of the hairs, so that it will make broad and narrow stripes, and dip this brush into the black stain and go over your wood with this, and it will produce the appearance of rosewood, which, when varnished, will be difficult to distinguish from the real wood.

To Stain Wood Yellow. Turmeric-root digested in alcohol for several days will give a yellow stain to wood.

Another Yellow Stain may be made by grinding chrome yellow very fine in benzine, and thinning it with benzine and brushing it over the wood. By varying the different stains a great variety of valuable woods can be imitated with success.

Another Oak Stain can be made by mixing raw umber in benzine and laying it on with a brush. All these stains will have a dull, dead appearance, until varnished. They should receive several coats of varnish, which will improve their appearance very much.

Another good Rosewood Stain. Take one-quarter pound of extract of logwood, and boil it in two pints of water until a dark red stain is obtained; then add about a teaspoonful of salt of tartar, and then stain your wood, laying it on with a brush boiling hot, giving it two or three coats of the stain. Let each coat dry before the other is applied. When dry take one ounce of sulphate of iron dissolved in a pint of hot water, and with a flat, stiff brush, which is made irregular by cutting the points of the hairs off, so as to make broad and narrow veins, go over your red stain, and this will make the imitation of the dark veins in rosewood.

Another good dark Stain may be made by boiling common liquorice to a strong syrup, and before laying it on go over your wood with one ounce of sulphuric acid in a pint of warm water, and when that is dry apply your stain boiling hot, and if not dark enough go over it again until the desired shade is obtained; when this is quite dry you can varnish it over and it will have a beautiful appearance.

TO MAKE A CHEAP VARNISH FOR STAINED WOOD.

Take one quart of boiled oil and heat it in a vessel over the fire, and when it is quite hot put into it one pound of beeswax cut into thin shavings, and stir all together until it is all melted and thoroughly incorporated with the oil; then take it off the fire, and when it begins to cool pour into it as much spirits of turpentine as will make it of a proper consistence for varnishing. This is an excellent varnish for the first coat.

TO MAKE CHEAP PAINTS WITH COAL OIL.

Coal oil or kerosene, may be used for house painting, and it will be found to come much cheaper than using all linseed oil; but it must be understood, that as it is a volatile oil, it will soon evaporate from the paint, and by using a small quantity of boiled linseed oil to bind the color, it will make a very lasting paint, and is particularly useful and economical as a first coat for rough or weather-beaten siding.

To make a Red Paint with Coal Oil. To four gallons of coal oil add one gallon of boiled linseed oil — if you cannot get the boiled oil you can use some Japan dries — about one pint of the driers to a gallon of the mixture, and stir all together. Litharge will answer for driers, and is as good as the Japan driers; it will require about one-quarter of a pound to every gallon of the mixture. In order to make a red paint with this oil, you can use Venetian red, putting in enough of the red (in powder) to make it about the consistence of cream; it may take about three or four pounds to the gallon. If you should require a dark red you can put in some lampblack, until you get the shade required.

To make a cheap Gray Paint with Coal Oil. Mix coal and linseed oil as directed in the foregoing recipe; then take hydraulic cement in powder, and if it is too coarse for use you must grind it in oil in a paint mill, and for every two pounds of this cement, take one-half a pound of white lead and mix all together to a proper consistence for painting. This will be found a cheap and durable paint and will make a

hard surface. By putting on two or three coats it will resist the action of the weather for a long time.

To make a Buff Paint with Coal Oil. Take yellow ochre and mix in the grey paint, made as directed in the foregoing recipe, until you get the shade required.

To make a Yellow Paint with Coal Oil. Use yellow ochre, and chrome yellow, and white lead mixed with the oil as directed in the foregoing recipe.

To make a Drab, use raw umber.

To make a Brown, use burnt umber.

To make a White Paint with Coal Oil. Take white lead and mix it in the oil, prepared as directed in the recipe "To make a Red Paint with Coal Oil."

TO GRAIN IN IMITATION OF DIFFERENT KINDS OF WOOD.

Oak graining is very much practiced by painters at the present time, and on account of its durability it is generally preferred for outside work. A pleasing variety may be produced by observing and imitating the different shades and grain of the natural wood. There are a great variety of combs, blenders, over-grainers, &c., used by some painters in graining oak and other kinds of wood. But these, or so many of them, are quite unnecessary in doing a good job of graining, for I have seen painters that could do an excellent job of graining with three or four leather combs — that any one can make — a piece of old cotton rag, a small camel hair pencil, and a worn out paint brush to lay on the graining mixture with. Of course it requires practice and skill to become a good grainer, that is, to imitate to perfection the knots and the light parts in the natural wood; but any one who has never tried graining before, can do a plain job with the greatest ease, by following the directions here given, and by a little practice they can soon learn to take out the lights.

There are a great variety of methods practiced by painters in preparing the ground-work, and mixing what is called the megilp or grainers' cream; but I shall confine myself to the

easiest and most simple processes, as I am satisfied, after more than twenty years' experience, that the most simple processes are the best and most durable and economical.

To prepare the ground-work for Oak Graining. Take white lead and put into it enough of yellow ochre and chrome yellow to stain it a very light buff color; mix up with boiled oil so as to make it of the proper consistence to paint with. Give your work about three coats and rub down with sandpaper, so as to get a smooth surface to work on. When the ground-work is quite dry, you can mix your graining color in the following manner:

To make Graining Color for Oak, take one pint of boiled linseed oil, and put into it an ounce of beeswax, cut into thin shavings, and heat the mixture over a clear fire, stirring it until the whole is thoroughly incorporated together; then take it off the fire and let it cool, and when cool put into it one ounce of whiting; then, when you have thoroughly mixed these ingredients together, that is, the oil, beeswax and whiting, your painters' cream or megilp is prepared and ready for use, and when you want to use it in graining oak, you must grind burnt umber and raw sienna in boiled oil, (be sure and grind very fine or your work will look coarse,) and color your megilp with these paints, using about equal quantities of each. You must then try a little of it to see if you have made it dark enough, if not, put in more umber until you get it to the right shade. If you have a piece of oak plank dressed and varnished, it will be a good guide to you as to color and grain. This graining color should dry in about three hours, and it may be that you will have to put into it a little Japan driers, and if it should require thinning, you must use turpentine until you get it to the proper consistence, which should be about like common varnish. When you lay on this graining color you must use a very stiff paint brush and lay it on very thin. A good brush for this purpose is a worn out paint brush.

To make the Combs for Graining Oak. Your combs for graining must be of various sizes. The coarse combs you can make by cutting them out of pieces of strong sole

leather; cut it thin on one edge and then cut notches in it like the teeth of a saw. You can make several of these combs of different degrees of fineness. If you have much graining to do, it would be as well to buy a set of steel graining combs. These combs are from one to six inches wide; some coarse, some fine, and extra fine. When you have laid on your graining color evenly and thinly on your work, then take your coarse comb, and holding it firmly, press it on the color and draw it down, making the grain wavy or straight, as you may fancy; then wipe the color from your comb before you lay it on again, and proceed as before. When you have gone over your work with the coarse comb, you can then take a fine one and go over it again, making a tremulous motion with the hand and bearing harder in some parts than others. The finest combs are then to be used to represent the grain nearest the heart of the tree. The work as it now stands represents plain oak graining. If you wish to take out the lights so as to represent the knots and light places observed in the real oak, you must proceed as follows: Take a piece of wash leather and wrap it once over your thumb, and with your nail covered by the wash leather you can wipe off the graining color, so as to leave light places in imitation of the real wood. When your work is quite dry, you can shade it so as to represent the dark and light shades seen in the real wood. This can be done by using some of your graining color made quite thin with spirits of turpentine, and taking a large brush glaze it over, running with the grain, making broad transparent streaks in some places, and in others leaving it light and without any glaze. This work is improved by varnishing, but some painters do not varnish it, but leave it at this stage and call it finished. If it is outside work you must use the best coach or copal varnish. When you have finished your work, clean your combs and brushes from the color. Do not let it dry on the teeth of your combs, as it will clog them and render them unfit for use again. This kind of graining is the most permanent and durable for outside work, but some painters grain in what is called Distemper Color, that is, by using the

graining color mixed and ground in beer or ale, and this kind of graining must have two or three coats of varnish over it to bring out the color.

To make a good Graining Cream for Oak Graining. Color your ground-work a light buff color, by using a little raw umber and chrome yellow to stain the white lead with, and when you have given your work two or three coats of this color and rubbed it smooth with sand-paper, you can then use a graining color made in the following manner: Take beeswax and melt it over a clear fire, and when melted remove it a distance from the fire, and pour into it enough of spirits of turpentine to make it as thick as paste; then put two tablespoonsful of this prepared wax into a pint of the following color: grind two ounces of sugar of lead, two ounces terra senna, one ounce of burnt umber and two ounces of whiting; all these ingredients must be ground together very fine, and mixed with enough oil and spirits of turpentine to make it thin enough to work easy. This color can be laid on as before directed for graining oak.

To grain Oak in Distemper Color, the ground-work is to be colored as before directed, of a light buff color, by using raw umber and chrome yellow in white lead. When this ground-work is quite dry and rubbed smooth with sand-paper, you can mix your distemper color in the following manner: take vandyke brown, burnt umber and raw terra senna, about equal quantities of each, and grind them together in a little beer or ale, or a little sugar and water. When you have ground these colors together quite fine, you can take your color off the paint-stone upon which you have ground it, and lay it on a piece of window glass or on a palette board; then take a coarse brush, quite clean, and dip it into the beer and rub up your paint on the board with it; then take your brush and go over your work in a wavy manner so as to produce the appearance of the grain in oak, and, before it dries, take a dry, clean flogger, or painters' dust brush will answer, and strike it lightly with the points of the bristles across the grain. When this is done you can take out the lights with a piece of damp wash leather, by draw-

ing it tight over your thumb and using your thumb nail; or you can use a piece of cork cut to a point. When it is quite dry you can put in the imitation of dark veins crossing the grain, and this is to be done with a camel hair pencil filled with umber ground in beer. It will be as well not to try to do too much of this kind of graining at once, as it dries very fast, and when dry you cannot work it, as it becomes set. Some painters use a little soap in their distemper color to prevent it drying so fast, and some brush the work over with soap-suds before commencing to grain; but this plan is considered objectionable, as it clogs the flogger and is liable to injure the work. There are other methods of graining, but it is not necessary to go into any long explanation of them in this book, as they have all been superceded by the superior methods first described of oil graining. An old style of graining which used to be practiced years ago, was to lay the graining color on very thickly, and take out the lights by going over it with dilute muriatic acid, then striking it over with the duster, and the parts touched with the muriatic acid would come off. Another method was to mix your graining color with gum arabic, or glue in water, and when this is laid on the work and quite dry, the lights were taken out by taking a camel hair pencil and dipping it in clean water, going over the places where you wish to take out the lights, and then taking a duster and striking it smartly, it will beat out the color where you have wet it with the water.

As this work is designed to be a practical work, I shall confine myself to such methods of working as are in common use, and such as can be practiced by any person in any part of the country; and I would here say, that the best method for a beginner to undertake to learn to grain, would be to have a piece of plank smoothly dressed and paint it over with two or three coats of ground color, and then he can practice on that and afterwards wipe it out and try again, according to the directions given in this book; and by practicing in this manner a person can soon become quite an expert at it and be able to do a very good job of graining. It is also a very good plan to have a piece of the kind of

wood you wish to imitate dressed and varnished, (so as to bring out the grain,) and have this to copy from, as the great perfection in the art of graining is to imitate nature exactly, so that the imitation may exactly resemble the real wood. I will here describe

A very simple and easy method of making a Graining Color for Oak. The ground color can be prepared with chrome yellow and raw umber in white lead as before recommended, and when your ground is dry and rubbed smooth with sand-paper, you can prepare your graining color in the following manner: Take one pint of raw linseed oil and put into it one-fourth part of copal varnish and about three tablespoonsful of turpentine; then melt two ounces of Castile soap, or common brown soap will answer, if you cannot get Castile, and when it is melted stir into it a little raw linseed oil; then mix all your ingredients together and you will have a good graining cream, or as painters call it, a megilp; this you will have to color with burnt umber and raw sienna, ground very fine in oil; it is then ready to be laid on your ground work, and if it dries too quick you must put in more oil; it should be made to dry in about two or three hours. The same process for laying it on and graining, as described in another portion of this book, is applicable to this also. As these directions are intended for learners and those persons who have no experience in the art of graining, I will, in order to make it as plain as possible, recapitulate what will be required in this kind of graining.

First: For the ground-work — white lead, chrome yellow, raw umber. Second: For the graining color — raw linseed oil, copal varnish, turpentine, Castile soap, colored with burnt umber and raw senna.

Tools required for graining are — First: a stiff brush to lay on your graining color. Second: a few leather combs, coarse and fine. Third: a piece of old cotton cloth or wash leather to wipe out the lights.

These few simple tools are all that will be required to do a fair job of graining, but of course where a person intends following the business, more tools and a greater variety will

be required; but I have seen some of the best grainers use only a few simple tools and turn off very good work. All kinds of graining that is exposed to the weather will fade and look dull and dead after a year or two, but it can be restored and made to look as well as new, by cleaning it and then varnishing it over again.

To grain in Imitation of Mahogany. This kind of graining is mostly all done in distemper, as it produces a softer appearance than in oil. I will here describe the different methods now followed by the best grainers:

To Prepare the Ground-work for Mahogany. Take white lead, chrome yellow and red lead, and mix in boiled oil until you get an orange color with this color; you must go over your work three coats and rub down smooth with sand-paper. When you have your ground-work quite dry, you can then proceed to laying on the graining color, which must be prepared in the following manner: Take equal portions of raw and burnt terra sienna, and grind them very fine in ale or beer, or a little sugar and water, or honey and water, just sufficient to cause the color to adhere, so that the varnishing will not rub it off. This color when you have ground it, will be thick, like a paste; you can put it on a palette or a piece of window glass, and take a clean paint brush that has been well worn and dip it in water, and work up your paint, and lay it evenly upon the work you are going to grain. If it is a door you are going to grain, you must commence with the panels first, and you will find it work easier, by taking first of all, before you lay on your color, a clean, wet rag, and wiping over your work, so as to remove any greasy matter on the surface. When you have spread your graining color evenly over the surface, you can then take some clean water and a piece of sponge, and wetting the sponge and wringing it out, you can then commence to take out the lights in imitation of the mottle in mahogany, and before it gets dry take your blender and soften your work, by brushing it lightly over, just touching it with the points of the hair. When you have softened it sufficiently you can then use an overgrainer, but not until it is quite dry; the object in using the

over-grainer is to put in the coarser veins seen in mahogany, and is done by using some of your graining color rubbed up in water, and laying it on with a flat brush, called by painters an over-grainer. When this is done your work is finished, and when perfectly dry it can be varnished, and all distemper graining should have at least two coats of copal or coach varnish.

In graining a door, the panels must be grained first, and do not spread your color on more than one or two panels at a time, or else it will dry before you can grain it; and when the panels are all finished you can proceed with the stiles, and if you have run over onto the stiles in graining your panels, you must wipe it off with a wet sponge. In order to make this operation more plain to a learner, I will here recapitulate what will be required. First:—your ground, composed of white lead, chrome yellow, red lead—in oil. Second:—your graining color, as follows: raw sienna, burnt sienna—in beer.

Third:—your tools; which consist of—a brush for graining color; a blender; an over-grainer; a piece of sponge.

Another Mahogany. The colors used in graining mahogany can be so varied as to produce an appearance of dark mahogany and light mahogany.

To make a Light Mahogany. You can use, for the ground-work, a mixture of chrome yellow and red lead, and when you have laid on two or three coats of this color, and rubbed it down smooth, you can then mix your graining color, which is made of vandyke brown and raw terra sienna, about equal quantities of each, ground fine in beer, and laid on as before directed. The ground for this mahogany should be a light orange color.

To make a very rich looking Mahogany. Mix, for your ground color, vermillion and chrome yellow, so as to let the yellow predominate a little. After your ground is quite dry, and rubbed smooth, mix your graining color, which should consist of burnt umber, raw sienna and crimson lake, an equal portion of each, very finely ground in beer or ale. Spread a thick coat of this graining color on your panel; then, with the wet or

damp sponge, proceed to take out the lights, and then soften it with the blender.

N. B.—A wet quill feather will be found very useful in taking out the lights, to be used, (after the sponge has been used,) in breaking up any large dark patches. After this is quite dry, yor can use the over-grainer in imitation of the fine dark veins which you will perceive on examining the natural wood. This mahogany has a beautiful appearance when varnished.

To imitate Rosewood. The ground color must be made by using Venetian red and a very small quantity of lampblack; just enough lampblack to deaden the color of the Venetian red a little. These colors must be mixed in boiled oil, and two or three coats of this color, well rubbed down, will make a very good ground for rosewood graining; and when your ground color is quite dry you can then proceed to laying on your graining color, which must be mixed in the following manner: Take lampblack and burnt umber, about equal parts of each, and grind them together on a paint stone, with a little beer or ale. They must be ground very fine, and when this is done you can take a flat brush and cut away some of the bristles at unequal distances, and you will then have a good tool for graining rosewood. You can then take up your graining color with this tool, and lay it on your ground work in imitation of the natural wood. In some places the veins will have to be straight, and in other places wending round, forming the appearance of knots. When this is quite dry you can varnish it with two or three coats of copal or coach varnish.

Another imitation of Rosewood. This imitation can be made by mixing a color nearly approaching to a chocolate color for the ground work, and this shade can be obtained by mixing Venetian red and lampblack as directed before, but the proportion of lampblack must be greater to give it a darker shade. When your work has received two or three coats of this ground color, you can proceed to graining, and your graining color must be lampblack ground in ale or beer, and this can be laid on with the graining tool before described, and by using a blender, or as it is sometimes called, a softener, and by touch-

ing it lightly before it dries, you can give your work a more natural appearance. When this is quite dry you can varnish as before directed.

To grain chairs in imitation of Rosewood. Paint your chairs with a ground color made by mixing lampblack with Japan varnish and a little linseed oil, and when they have received two or three coats of this ground color, and have become quite dry, they can then be grained by using for the graining color, Venetian red finely ground in ale or beer; and to lay it on you can use a small flat brush out of which some of the bristles have been cut at unequal distances, and with this tool, dipped in your graining color, you can draw it over your black ground, forming the imitation of the natural veins observed in rosewood. This imitation, when quite dry, has to be var-varnished with copal or coach varnish to which a reddish tinge has been given with rose-pink.

To grain Rosewood in Size. Rosewood can be grained in size, but this method of graining cannot be recommended for permanence and durability, as it will be liable to crack and scale off after a short time. But as it may be useful in some cases to know how to do work of this description, I will here give directions for this kind of graining. First, the ground work has to be laid on, and this has to be made by grinding together in size, Venetian red and a small quantity of vermillion, and mixing it in glue size so that when it is cold it may have the appearance of a weak trembling jelly. Your work will have to receive two coats of this paint, and when your ground is quite dry you can mix your graining color by grinding burnt umber and lampblack, about equal quantities of each, to be ground very fine in some of the size used for the ground work. Then take a flat brush out of which some of the hairs have been cut, at unequal distances, and with this brush dipped in your graining color, proceed to put on the grain in imitation of the natural wood. When this is quite dry you can varnish it with any kind of clear varnish, but in order to give your work a more natural appearance you can stain your varnish with a little rose-pink.

To Imitate Satin Wood. The ground color for this is made

by mixing chrome yellow and white lead in linseed oil, and using a little driers if your oil is not boiled; and when you have given your work two or three coats of this color, and rubbed it down very smooth, you can mix your graining color in the following manner: Take raw terra sienna and grind it very fine in a little ale or beer, and then lay it on your work very thin, and then before it gets dry take a damp sponge and mottle it, by rolling the damp sponge gently and lightly over it; then take your blender and soften it by touching it lightly, and when this is dry take an over-grainer and put on the top grain in a wavy manner, imitating the grain of the natural wood, and when this is quite dry it can then be varnished and it will have a beautiful appearance.

Another Satin Wood. The ground-work for this is made by grinding chrome yellow, white lead and a little vermillion, so as to produce an orange shade. When this ground color is quite dry, you can grain with equal quantities of raw umber and raw terra sienna, ground together very fine in ale or beer; lay this on your ground-work and with a damp sponge proceed to mottle it, and then soften as before directed, and when dry put on the top grain with the same color, and when dry varnish as before directed.

To Imitate Walnut Wood. The ground color to imitate black walnut is made by mixing together Venetian red and lampblack, and a little yellow ochre, enough to give a yellowish tinge, and when your work has received two or three coats of this color and it is quite dry, you can then proceed to graining; and your graining color is to be made by grinding burnt umber very fine in ale or beer, and then laid on with a clean paint brush, and before it dries you must take out the lights in imitation of the natural wood. This you can do by using clean water and a sponge; you can squeeze out the water from your sponge, so as to have it just damp, and by laying it on your work and then drawing it down in a sloping direction, you can imitate the natural grain; it must then be softened with the badger hair blender, and when dry use an over-grainer and put on the top grain with the same color, and when quite dry varnish.

Another Black Walnut. Make your ground color of burnt umber, white lead and yellow ochre, so as to get a yellowish brown shade; and the graining color must be burnt umber and burnt terra sienna, ground fine in ale or beer, and laid on as before directed, and varnished when quite dry.

To grain in Imitation of Birds-eye Maple. Mix your ground color with white lead, chrome yellow, and a little red lead, but very little red lead must be used, only just enough to tinge the yellow a little. When you have laid on your ground color and rubbed down smooth, you can then grain it with raw terra sienna, ground very fine in ale or beer: take a large paint brush (one that is pretty well worn will be the best) and make it quite clean by washing it out with benzine or turpentine, and then with soap and hot water; and when you have it quite clean you can use it to lay on your graining color. Before your graining color dries, you can take a piece of stiff shoe leather, about five or six inches long and about two or three inches wide, and make it damp by dipping it into water, and with this you can take out the lights by laying the edge of it horizontally against your work and drawing it down in the same manner as if you were combing oak, but checking your hand every inch or so, and then drawing it down again and stopping, and by a little practice in this manner you can soon imitate the horizontal veins observable in the natural wood. You can mottle it in places, by using the damp sponge pressed against it, and then soften all before it dries, by brushing it lightly with the badger-hair blender. When this is dry you can use the over-grainer, and a little of the same color to put in the top grain. When all is quite dry, give it two or three coats of varnish.

N. B. The imitation of birds-eye can be easily made by dabbing it with the point of the finger while it is wet.

Another imitation of Birds-eye Maple. Make a light buff color for the ground-work, by using white lead, chrome yellow and yellow ochre, with a little raw umber, and when quite dry you can lay on the graining color, which must be composed of raw terra sienna and a little burnt terra sienna, both ground very fine in ale or beer and mixed to-

gether and laid on with a brush, and the lights are to be taken out, and the sponge used as directed before, and the birds-eye imitation to be made with the point of the finger, and when dry varnished as directed in the first imitation.

Another imitation of Birds-eye Maple. A dark maple can be made by using for the ground color yellow ochre and raw umber, so as to make a dark buff color, and when dry grain with raw terra sienna and raw umber, ground very fine in ale or beer. Use your brush to spread the color evenly over the work, then make the imitation with the sponge, leather and over-grainer, as before directed, and when dry it can be varnished.

To imitate Maple in Oil Colors. Make the ground work with chrome yellow, white lead and a little vermillion, and when it is quite dry and rubbed smooth you can mix the graining color by using burnt terra sienna and raw terra sienna, about equal quantities, ground in oil, and this must be thinned with turpentine and enough Japan driers or copal varnish to make it dry quick, and enough of what is called grainers' cream must be added to keep the grain from running together. This grainers' cream is made by melting beeswax in a tin or iron vessel, over the fire; and when melted it must be taken a distance from the fire, and thinned with turpentine enough to make it of the consistence of thick molasses. When your graining color is prepared you can lay it on by using a stiff paint brush and rubbing it on thin. Then take out the lights with the sharp edge of a piece of sole leather, which must be frequently wiped to keep it clean. It can then be mottled a little by dabbing it with a piece of putty. It can then be softened by striking it very lightly with a dry brush. The top grain had better be put on when the work is quite dry, by using burnt umber ground in ale or beer, and lay it on with your over-grainer in a wavy manner, imitating, as near as you can, the natural wood. This will have to be varnished with two coats of copal or coach varnish.

As the above method of graining is the best for out-door work, and is very much practised, I will make the directions more easily understood and more plain by repeating them.

In the first place the ground is—chrome yellow, white lead, a little vermillion—mixed in boiled oil. Second, the graining color is—raw sienna, burnt sienna, equal parts, ground in oil and varnish; grainers' cream, made with beeswax and turpentine.

To grain Mahogany in Oil. As the oil graining will stand the weather much better than the distemper graining, it is therefore more used for outside graining. But it is more difficult, and requires more practice to do a good job in oil than in distemper. But I will here describe the method of oil graining as practiced by the best grainers.

The ground work is to be laid on in the same manner as if you were going to grain in distemper. Mix it with white lead, red lead and chrome yellow, so as to have a light orange shade, and when this is quite dry and rubbed down smooth, the graining color can be made by grinding burnt sienna very fine in oil, using a little Japan to make it dry, and thinning it with turpentine, and putting in enough grainers' cream to keep it from running together. Go over the ground work with this ground color very thin; then take a dab tool and wipe out the mottling; then soften it with the badger-brush, and lay on the over-grain with rose pink ground in turpentine and Japan; and for the fine dark veins use vandyke brown, made very thin with Japan and turpentine. When dry varnish with copal or coach varnish.

PAPER HANGING,

OR PLAIN DIRECTIONS FOR PAPERING ROOMS.

As the hanging of paper is generally considered as belonging to the painter's business, most all painters have, more or less, experience in this kind of business, and this work would be incomplete without an article upon this subject. I shall, therefore, proceed to give such plain practical instructions as will enable any person to paper rooms without any difficulty.

It is light work, and women can do this kind of work equally as well, and sometimes better, than men, as neatness is particularly requisite in doing a good job of paper hanging.

In the first place, I would recommend, to a person who has had no experience in the business, to choose such a pattern of paper as will be easy to match, or in fact such a pattern as will not require to be matched, and they will find it much easier to hang, as it is difficult for a new beginner to get the figures of a matched pattern to their proper place. The first operation in hanging paper, is to trim it; that is, to cut off with a pair of shears one of the edges of the paper, cutting close up to the pattern; and this can be done in the following manner: by sitting on a chair and taking one end of the paper on your lap, holding it in your left hand and letting it unroll on the floor. You can trim with your right hand, rolling it up again at the same time with your left hand.

Wall paper is put up in what is called bolts, or rolls, and these rolls are generally about eight yards long, and about eighteen to twenty inches in width. Before proceeding to put on the paper, the walls will have to be dusted off clean, and if they have been whitewashed all the white wash will have to be brushed off with a stiff broom as clean as possible, for if this is not done your paper will peel off as soon as it gets dry, bringing the whitewash, in flakes, with it, and all your labor will be lost. It is a very good plan to wash your walls over with vinegar and water after brushing off the whitewash. If the vinegar is very strong you can dilute it; two parts water and one part vinegar will answer, and when this is dry you must mix a little glue and water, using about one-fourth of a pound of glue to a pail full of water, and take a whitewash brush, and go round the doors and windows, and the top of the base-board, and in the corners, and up next to the ceiling, and every place where the paper is likely to get loose. I will here say that it is not necessary to take this trouble with walls that have not been whitewashed, as the paper will stick on clean walls without any preparation. The next thing to be done is to make the paste, and this you can do by using common wheat flour, and if the flour is musty it

will not hurt it for paste, but you must be careful to have as few lumps in your paste as possible. You can have the water boiling hot; then take the flour and mix it in cold water until you have made a thin batter of it, and when you have stirred it sufficiently, so that it is free from lumps, you can pour it into the boiling water, stirring it well at the same time. Now you will have to observe this hint with regard to the thickness of your paste; and that is, that if the paper that you are going to put on is thin common paper, then your paste must be made as thick as you can conveniently use it, and if the paper is a good quality of thick strong paper, then you must make the paste thin; and the reason of this is, that thin paste will quickly penetrate common paper, and make it so rotten that you cannot handle it. Some persons think that they must use glue or alum in paste, but it is not necessary, as the paper will adhere to the wall just as well without it. This I know from experience. If the walls have been papered before, you can tear off all the old paper that you can, that is, all that will come off easy, and paper over what is left. You must have a board about two and a-half feet wide, and about ten or twelve feet long to lay your paper on when you paste it, and you must also have a medium sized whitewash brush to lay the paste on with, and you will require a pair of very sharp shears, as dull shears will not cut paper when it is wet. You can measure the length of the paper required from the ceiling to the top of the base-board—you need not have it run quite up to the ceiling, as your border will cover an inch and a-half, or perhaps, if it is wide, it will cover three inches—then take a roll of paper, and measure how many whole lengths it will take round the room, and cut the number required, and in cutting them, if you observe the pattern you can generally cut them straight by that. When you have all the whole lengths cut, they must be laid down, one on the top of the other, upon the board, and commence and paste one strip at a time, putting it on the wall as quickly as possible, before the paste soaks into it too much. It is best for a learner to begin behind a door, or in some place not much noticed; by doing this, if you do not get the first or second

piece on very neatly, it will not be of much consequence. If the strip is too long for you to handle conveniently, you can turn it up at the bottom before you take it from the board. Turn it up about two feet or so, letting the two pasted sides come together, and when you have your strip perpendicular, you can stick it fast at the top, and then pull it down at the bottom where you turned it up, and you can use a cloth to rub it on, or what is perhaps better, a hair broom, or dust broom, and you must commence at the top, brushing it down the middle, and then outwards on both sides. If it comes over the base-board, you can pull it away, and with your shears trim it so that it will fit neatly to the top of the base-board. In putting on the strips, if you should have one that does not hang perpendicular, you can pull it from the wall so that it only hangs by a few inches at the top, and then you can get it right and rub it on again. In a short time after you have rubbed it on, it will appear full of blisters, but these will disappear as it gets dry. In turning a corner it is better to cut a strip of paper in two, lengthwise, and then fit it in, as it is difficult for a beginner to bend a whole strip into a corner so as to make it lie smooth. After all the whole strips have been put on, then the pieces can be put in over the doors and windows, and when this is done, then the border can be cut into convenient lengths and put on, but in joining the border, see that the pattern matches.

A COLLECTION OF VALUABLE RECIPES AND HINTS APPLICABLE TO PAINTING.

To make Putty. The putty used by painters to glaze sash, is composed of whiting (or, as it is sometimes called, Spanish white,) mixed with raw linseed oil. Sometimes painters put in a little white lead, but this is not necessary.

N. B. If the sash is not painted where the putty comes in contact with it, you will find that when the putty gets dry, it will get loose and fall out. One coat of paint will prevent this, and cause the putty to adhere.

Hints on Burning Colors. There are several colors in common use amongst painters, which can be changed from one

color to another by burning, and amongst the most common, I will mention terra sienna, which, in its raw state, is a yellow color, but by putting it into an iron shovel or ladle, and heating it in a clear fire, it is changed to a beautiful reddish brown color. In the same way, umber can be changed to a deep brown by being burnt. Sulphate of zinc, or, as it is sometimes called, white vitriol, is but a poor drier, but after it is burnt, and the water of crystallization driven off, it becomes a very powerful drier; but this will have to be burnt in a glazed earthen vessel, for it will adhere to iron, or anything that is rough, so that it will be very difficult to separate it.

How to use Old Paint that has been standing a long time. If you have any paint that has been standing mixed a long time, you will find that it has become what painters call "fatty," and you will find, also, that it will be difficult to use it without its running; and about the only way that you can use it, will be by mixing a little fresh paint with it, and then thinning it with benzine or turpentine, not using any more oil, and if you have any first coating or priming to do, it is best to make use of it for that purpose.

To make a brilliant Black Varnish for Leather and other purposes. Take a stone-ware vessel, sufficiently large for the purpose, and put into it eight ounces of shellac powdered fine in a mortar, and one and a half ounces of lampblack; then pour onto it two and a half pounds of alcohol, and cover it to keep out the dust, and let it stand in a moderately warm place, and shake it frequently, for about one day, at the end of which time the shellac will be dissolved. You must then add to it one and a half ounces of turpentine and let it stand for about one day longer, when it will be fit to use.

To make a Varnish for Pictures and Maps, which is very brilliant, and is not injured with water. By dissolving Venice turpentine in alcohol until it is about as thick as milk, you can make a varnish that is very suitable for varnishing maps, pictures, &c. It is necessary to size your pictures and maps before varnishing, with a little isinglass, or a little gum arabic in water.

TO BRONZE AND GILD CHAIRS.

Chairs that are intended to be bronzed or gilded should first receive all the paint that you intend to put on them, and then they must be varnished, and before the coat of varnish is quite dry, (that is, while it is a little tacky when touched with the finger,) they must receive the bronze, and this bronzing is to be done in the following manner: Have the pattern you wish to lay on cut out of a piece of thin card-board, or else out of thin sheet brads or copper, and lay your pattern on the place where you wish to make the figure, and with a dry brush dipped in the bronze or gold powder, rub over the pattern, and wherever the powder touches the tacky surface of the varnish, there it will adhere. The chairs can be varnished over again and they are then finished.

TO PAINT COMMON CHAIRS.

Common chairs are frequently painted in the following manner: Take Venetian red and make a size color, by mixing it with a little glue in water, and paint your chairs with this, and when quite dry take some lampblack, mixed in glue water, and with a flat brush, out of which some of the hairs have been cut, you can streak over the red ground of the chair with the black, so as to imitate the grain of rosewood. When this is dry, you must give two coats of varnish; and it will improve the appearance of your work if you will stain this last coat of varnish, by putting into it a little rose pink.

N. B. The flat brush with which you make the streaks must have the hairs cut out irregularly, so that it will make broad and narrow veins as seen in the natural rosewood.

Another very cheap and easy way of Painting new Chairs. This method of painting chairs is only applicable to new chairs, as the size color used would not adhere sufficiently to old ones. Lay on a size color, made as before directed, by mixing any color in glue water, and when this is quite dry, varnish over with any kind of common varnish.

Another method of Painting Chairs. Proceed as directed in the last article and lay on the size color, and when this is dry take some different color ground up in size also, and lay that on so as to resemble the veins in wood; then when dry, varnish all over one or two coats.

To Paint any kind of Furniture. All kinds of furniture can be painted as directed for chair painting in the foregoing articles, but the more coats of varnish you give them, the better your work will last.

To Paint Fine Chairs. Fine chairs must be painted on good body colors, about two or three coats, and then rubbed down smooth and grained, so as to imitate some kind of wood. Very plain directions will be found in another part of this book to do all kinds of graining.

TO TRANSFER PICTURES TO WOOD, &c.

The following is an easy method of transferring any engraving or lithograph, or any kind of a picture, to wood. The first operation to be performed is to paint the wood any light color, and it should receive two or three coats and be rubbed down smooth, and then one coat of light colored varnish must be laid on, and when this is nearly dry, that is, so as to feel a little tacky when touched with the finger, then you must lay on the picture (to be transferred) with its face down, and press it hard, so that it may adhere smoothly and firmly to the tacky surface of your work; then let it get perfectly dry. Now, a person might suppose that they would never see the picture again, as the face of it is firmly stuck to the varnished surface; but, in order to bring it to light you must proceed in the following manner: Take a wet sponge or a wet cloth and moisten the back of your picture, and rub it with your finger, and the paper can be rubbed off in this manner in little rolls. You must proceed in this manner, moistening and rubbing the paper, until you have rubbed it all off, and your picture begins to appear, but you must be very careful towards the last, or you will rub off some part of the picture; and when you have rubbed off all the paper you can get off, without injuring the picture, you must then

let it get quite dry, and when it is dry you must then dust off all the little specks of paper that may still adhere to it. Your picture will now present rather a dim appearance, but in order to bring it out you must go over with a coat of clear varnish, and this will bring it to light as bright as ever, and it will now have the appearance of having been engraved on the wood; or if it is a colored picture, it will appear as if it had been painted there, as no part of the paper on which the picture was originally engraved can be seen. The above is a beautiful and an easy method of ornamenting ladies' work-boxes, tops of stand-tables, &c., &c.

In order to make the instructions more plain, I will repeat them in a condensed form.

1st. Paint the work two coats of a light color.

2d. Varnish one coat of clean varnish.

3d. Lay your picture, face down, on the varnish, before it is quite dry.

4th. When quite dry proceed to rub the paper off the the back of the picture by moistening it and rubbing with the finger.

5th. When the picture is quite dry, dust it off and varnish it and it will appear.

To transfer a Pattern of any kind to be painted on work. The following is a method very commonly practiced by painters of transferring patterns that they may wish to paint on their work. Take the pattern drawn on paper, and with a pin stick holes in the lines of the pattern — the holes must be pretty close together; and when this is done you can take a little rose pink in powder, and tie it up in a piece of coarse cloth, and lay your pattern flat down on your work. Dust it over with the rose pink, by dabbing it on to the pattern, and this will cause the rose pink to penetrate through the holes in your pattern, and when it is taken off, the outlines of your pattern will be left on your work.

Other methods of Copying Patterns. There are several other methods used by painters to copy patterns; one very easy method is the following: Take a piece of white paper and smear one side of it with a composition, made by mixing

lampblack with a piece of soap, so as to make a black paste of it, and when you have smeared your paper with this composition, you can wipe it off, so that it will not soil anything, and there will still be sufficient left on to answer the purpose; you then take this piece of black paper and lay the black side down on a piece of white paper, and on the top of that lay your picture or pattern, that you wish to copy, with its face up, and you will have them arranged thus: first, the white paper laid flat on the table; second, the black paper laid on that; third, the picture or pattern laid on the top, and when thus arranged you can take a knitting needle, and with the point trace the lines, pressing pretty hard, and you will find that every line will be distinctly made on the white paper. Then, if you wish, you can stick holes with a pin in the pattern that you have thus obtained, and transfer it as directed in the last article.

Another method of Copying Patterns. Patterns can also be copied by using transparent tracing-paper, and this can be made by varnishing the paper over with boiled oil and letting it dry, or it can be made by using any kind of varnish that will render it transparent; and this paper can be laid on the pattern, and every line can be distinctly seen, so that it can be accurately traced with a lead pencil.

TO CRYSTALLIZE TIN.

Tin, when crystallized, can be used by painters for a variety of purposes, and is very ornamental. It can be made by taking a sheet of tin and rubbing it over with whiting, to remove any grease that may be on it, and when quite clean warm it, or lay it on something hot; then take a sponge or brush, go over it with spirits of salt, and it will soon become crystallized; then wash it off with clean water, and when it is dry it can be varnished with copal varnish, and any transparent color can be used in the varnish, such as Prussian blue, raw sienna, or burnt sienna, and any of these colors will give it a beautiful appearance. If the varnish is stained with red lake, it will make the crystal look very pretty.

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